Appendix D

Sample Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area A Cap Material

Sample Date	Background Concentrations [1]	NESCS rural residential/lifestyle block – no produce [2]	NESCS commercial/ industrial outdoor worker (unpaved) [3]	Waste Acceptance Criteria			1/11/22-2/11/22			7-Nov-22			20-Apr-23									
Sample Name							TP1 0.6m	TP8 1.0m	TP11 0.6m	TR9 0.2m	TR10 0.5m	TR11 0.3m	TP38 0.3m	TP39 0.5m	TP40 0.6m	TP41 0.2m	TP42 0.2m	TP42 1.0m	TP43 0.3m	TP43 0.7m	TP44 0.4m	TP44 1.0m	TP45 0.2m
Sample Depth (m)				WRC Cleanfill Criteria	Envirofill South (Managed Fill)	Hampton Downs landfill	1.55m-1.65m	0.95m-1.05m	0.55m-0.65m	0.15m-0.25m	0.45m-0.55m	0.25m-0.35m	0.25m-0.35m	0.45m-0.55m	0.55m-0.65m	0.15m-0.25m	0.15m-0.25m	0.95m-1.05m	0.25m-0.35m	0.65m-0.75m	0.35m-0.45m	0.95m-1.05m	0.15m-0.25m
Lab Number							3108552.20	3108552.2	3108552.3	3113975.2	3113975.4	3113975.3	3257173.6	3257173.9	3257173.10	3257173.13	3257173.14	3257173.15	3257173.16	3257173.17	3257173.18	3257173.19	3257173.20
Soil Strata Type							2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2
Heavy Metals (mg/kg dry weight)	95% upper limit for background (mg/kg)																						
Arsenic	6.8	21	70	17	70	100	5	4	3	2	3	3	5	5	3	3	3	3	4	5	3	3	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	32	< 20	< 20	< 20	< 20	26	97	20	47	< 20	< 20	< 20	< 20	159	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.14	< 0.10	< 0.10	< 0.10	0.1	< 0.10	0.15	0.17	< 0.10	< 0.10	< 0.10	< 0.10	0.15	0.23	< 0.10	0.14	< 0.10
Chromium	30	770	6,300	56	362	100	11	11	7	26	25	8	10	11	10	23	26	8	18	12	26	7	26
Copper	25	NL	>10,000	120	107	200	28	20	10	17	21	16	24	31	16	18	19	16	25	22	17	20	17
Lead	20	250	3,300	78	210	200	61	19.4	16.8	14.9	20	17.8	34	76	17.4	15	15.7	18.2	26	23	16.4	14.7	16.1
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	10	7	3	14	15	5	8	10	8	12	13	4	12	16	13	3	13
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	73	51	25	66	69	40	85	105	46	65	69	33	76	75	65	56	70
PAHs																							
BaP (Eq) NES	ND	11	35	2	35	NL	0.61	< 0.04	< 0.04	< 0.03	< 0.03*	< 0.04*	0.21	0.32	0.049	0.196	< 0.028	< 0.033	0.095*	< 0.034*	< 0.029*	< 0.032	< 0.028
Asbestos (SQ)																							
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	ND	ND	< 0.001*	< 0.001*	< 0.001	ND	ND	ND	ND	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	ND	ND	ND	ND	ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area A Fill

Sample Date	Background Concentrations [1]	NESCS rural residential/lifestyle block – no produce [2]	NESCS commercial/ industrial outdoor worker (unpaved) [3]	Waste Acceptance Criteria			1/12/22 - 2/12/22															20-Apr-23			
Sample Name							TP1 2.0m	TP2 1.8m	TP2 3.0m	TP3 0.7m	TP3 2.0m	TP4 1.0m	TP5 2.0m	TP5 3.0m	TP6 1.5m	TP6 3.0m	TP7 1.8m	TP8 2.0m	TP9 1.5m	TP9 2.5m	TP10 0.8m	TP10 2.0m	TP12 1.2m	TP35 1.0m	TP35 2.5m	TP38 2.0m	TP40 1.0m
Sample Depth (m)							1.95m-2.05m	1.75m-1.85m	2.95m-3.05m	0.65m-0.75m	1.95m-2.05m	0.95m-1.05m	1.95m-2.05m	2.95m-3.05m	1.45m-1.55m	2.95m-3.05m	1.75m-1.85m	1.95m-2.05m	1.45m-1.55m	2.45m-2.55m	0.75m-0.85m	1.95m-2.05m	1.15m-1.25m	0.95m-1.05m	2.45m-2.55m	1.95m-2.05m	0.95m-1.05m
Lab Number							3108552.3	3108552.5	3108552.6	3108552.8	3108552.9	3108552.11	3108552.14	3108552.15	3108552.17	3108552.18	3108552.2	3108552.24	3108552.26	3108552.27	3108552.29	3108552.30	3108552.35	3113975.13	3113975.14	3257173.70	3257173.11
Soil Strata Type							4	4	4	3	4	3	4	4	4	4	4	4	4	4	3	4	3	4	4	4	4
Heavy Metals (mg/kg dry weight)	95% upper limit for background (mg/kg)																										
Arsenic	6.8	21	70	17	70	100	*22*	8	*20*	< 2	*38*	4	*32*	*17*	11	11	*16*	*17*	*13*	*61*	7	*46*	9	*15*	*36*	**72**	7
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	*122*	*64*	720	< 20	*250*	*23*	820	1040	510	760	290	*176*	1320	730	1230	1720	1660	590	600	510	950
Cadmium	0.22	110	1,300	0.8	1.2	20	*1.22*	*0.31*	*9.9*	< 0.10	*3.3*	0.12	*0.84*	*2.7*	*0.48*	*1.14*	*1.05*	*3.2*	*0.75*	*4.1*	0.13	*11.3*	0.21	*1.24*	*7.5*	*3.2*	*0.6*
Chromium	30	770	6,300	56	362	100	25	16	*36*	8	*37*	9	14	20	17	20	22	*42*	15	*40*	15	*93*	13	*31*	*53*	*38*	29
Copper	25	NL	>10,000	120	107	200	*99*	*39*	*161*	15	*250*	19	*46*	*98*	*42*	*47*	*58*	*124*	*61*	*114*	25	*157*	*29*	*290*	*430*	410	*41*
Lead	20	250	3,300	78	210	200	*179*	*810*	*380*	18.4	*1370*	*58*	*690*	*370*	*133*	*121*	*157*	*500*	*31*	*1030*	*49*	*460*	*34*	*410*	*930*	*360*	*126*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	*23*	*12*	*54*	4	*24*	*11*	*15*	*70*	*46*	*37*	*17*	*25*	*14*	*22*	*90*	*127*	*50*	*127*	*91*	*54*	*49*
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	*1010*	*250*	*390*	*55*	*2200*	*75*	*330*	*720*	*250*	*270*	*780*	*750*	*111*	*2400*	*128*	*1860*	*110*	*1550*	*3800*	*1640*	*590*
PAHs																											
BaP (Eq) NES	ND	11	35	2	35	NL	*0.58*	*0.13*	*0.82*	*< 0.03**	*0.07*	*0.24*	*< 0.04**	*0.09*	*0.36*	*< 0.04**	*0.23*	*0.2*	*< 0.04**	*< 0.04**	*< 0.04**	*< 0.04**	*1.44*	< 0.04	*0.48*	*0.086*	*0.065*
Asbestos (SQ)																											
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	**0.003**	ND	< 0.001*	< 0.001*	**0.001**	< 0.001*	< 0.001*	< 0.001*	< 0.001*	< 0.001	< 0.001	< 0.001*	< 0.001*	< 0.001*	ND	**0.001**	**0.005**	< 0.001*	**0.007**	< 0.001	**0.008**
% ACM	ND	< 0.01	< 0.05				< 0.01	ND	< 0.01	< 0.01	**0.12**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area A Natural Ground											
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			1/11/22-2/11/22				20-Apr-23
Sample Name							TP4 4.0m	TP7 3.0m	TP11 1.5m	TP12 2.7m	TP40 2.1m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	3.95m-4.05m	2.95m-3.05m	1.45m-1.55m	2.65m-2.75m	2.05m-2.15m
Lab Number							3108552.12	3108552.21	3108552.33	3108552.36	3257173.12
Soil Strata Type							5	5	6	5	6
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**										
Arsenic	6.8	21	70	17	70	100	3	3	3	2	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	21	68	< 20	830	102
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chromium	30	770	6,300	56	362	100	6	7	8	9	7
Copper	25	NL	>10,000	120	107	200	10	13	13	14	17
Lead	20	250	3,300	78	210	200	15.6	21	17.6	18	16.4
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	3	3	4	6	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	35	54	30	32	39
PAHs											
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.035
Asbestos (SQ)											
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	-	ND	ND	ND	-
% ACM	ND	< 0.01	< 0.05				-	ND	ND	ND	-

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

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Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area A Topsoil																				
Sample Date				**Waste Acceptance Criteria**			1/11/22 - 2/11-22												20-Apr-23	
Sample Name	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**				TP1 SUR	TP2 SUR	TP3 SUR	TP4 SUR	TP5 SUR	TP6 SUR	TP7 SUR	TP8 SUR	TP9 SUR	TP10 SUR	TP11 SUR	TP12 SUR	TP35 SUR	TP38 SUR	TP39 SUR
Sample Depth (m)							0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15
Lab Number							3108552.1	3108552.4	3108552.7	3108552.1	3108552.1	3108552.2	3108552.2	3108552.2	3108552.3	3108552.3	3108552.3	3108552.3	3113975.12	3257173.5	3257173.8
Soil Strata Type																					
Heavy Metals							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
(mg/kg dry weight)	**95% upper limit for background (mg/kg)**			**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**															
Arsenic	6.8	21	70	17	70	100	4	9	5	5	4	5	5	5	4	5	5	9	5	5	8
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	27	480	25	< 20	300	< 20	21	< 20	< 20	45	< 20	960	50	97	41
Cadmium	0.22	110	1,300	0.8	1.2	20	0.22	0.22	0.18	0.19	< 0.10	0.18	0.31	0.25	0.12	0.19	0.31	0.25	0.13	0.15	0.5
Chromium	30	770	6,300	56	362	100	11	12	9	10	10	9	11	9	11	16	9	14	9	10	13
Copper	25	NL	>10,000	120	107	200	27	30	23	24	26	24	37	34	22	28	22	31	24	24	40
Lead	20	250	3,300	78	210	200	83	47	36	43	24	35	36	37	30	39	51	30	29	34	79
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	33	40	9	7	19	8	9	9	6	12	5	55	8	8	12
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	84	119	68	73	47	82	180	161	67	94	76	143	66	85	191
PAHs																					
BaP (Eq) NES	ND	11	35	2	35	NL	0.24	0.1	0.3	0.5	0.04	0.23	0.19	0.29	0.15	0.14	< 0.04	1.7	0.12	0.21	1.83
Asbestos (SQ)																					
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	< 0.001	ND	ND	ND	**0.001**	< 0.001	ND	ND	ND	ND	ND	**0.002**	< 0.001*	< 0.001*	< 0.001
% ACM	ND	< 0.01	< 0.05				< 0.01	ND	ND	ND	< 0.01	< 0.01	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	< 0.01

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
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4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
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Soil Strata Type

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area B Fill											
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			2/11/22 - 3/11/22				
Sample Name							TP 13 1.0m	TP14 0.8m	TP15 0.5m	TP15 0.8m	TP16 0.3m
Sample Depth (m)							0.95m-	0.75m-0.85m	0.45m-0.55m	0.75m-0.85m	0.25m-0.35m
Lab Number				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	3108552.38	3113975.7	3113975.24	3113975.25	3113975.27
Soil Strata Type							4	4	3	3	4
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**										
Arsenic	6.8	21	70	17	70	100	10	5	3	3	*14*
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	75	154	< 20	< 20	360
Cadmium	0.22	110	1,300	0.8	1.2	20	*4.6*	0.26	0.11	0.11	0.32
Chromium	30	770	6,300	56	362	100	43	9	9	7	12
Copper	25	NL	>10,000	120	107	200	49	27	16	15	25
Lead	20	250	3,300	78	210	200	*350*	*138*	29	24	*200*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	11	6	4	3	47
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	*250*	98	83	65	158
PAHs											
BaP (Eq) NES	ND	11	35	2	35	NL	0.43	0.12	< 0.04	< 0.04	0.14
Asbestos (SQ)											
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	< 0.001*
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	< 0.01

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area B Natural Ground									
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			2/11/22 - 3/11/22		
Sample Name							TP13 3.2m	TP14 1.2m	TP16 0.5m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	3.15m-3.25m	1.15m-1.25m	0.45m-0.55m
Lab Number							3108552.39	3113975.7	3113975.28
Soil Strata Type							5	5	5
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**								
Arsenic	6.8	21	70	17	70	100	16	2	6
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	89	28	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.68	< 0.10	0.33
Chromium	30	770	6,300	56	362	100	18	8	10
Copper	25	NL	>10,000	120	107	200	63	15	18
Lead	20	250	3,300	78	210	200	*189*	20	*107*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	14	5	9
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	*380*	31	127
PAHs									
BaP (Eq) NES	ND	11	35	2	35	NL	0.45	< 0.04	0.13
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM			
AF/FA	ND	< 0.001	< 0.001				< 0.001*	ND	< 0.001*
% ACM	ND	< 0.01	< 0.05				< 0.01	ND	< 0.01

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area B Topsoil										
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			2/11/22 - 3/11-22			
Sample Name							TP13 SUR	TP14 SUR	TP15 SUR	TP16 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0-0.15	0-0.15	0-0.15	0-0.15
Lab Number							3108552.4	3113975.2	3113975.2	3113975.3
Soil Strata Type							1	1	1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**									
Arsenic	6.8	21	70	17	70	100	5	5	4	4
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	50	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.24	0.14	0.21	0.11
Chromium	30	770	6,300	56	362	100	11	12	8	24
Copper	25	NL	>10,000	120	107	200	24	24	31	21
Lead	20	250	3,300	78	210	200	73	33	26	22
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	8	9	5	14
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	115	68	139	79
PAHs										
BaP (Eq) NES	ND	11	35	2	35	NL	0.06	1.11	0.66	0.09
Asbestos (SQ)										
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area C Cap							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22
Sample Name							TR16 0.4m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.35m-0.45m
Lab Number							3113975.10
Soil Strata Type							3
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	3
Boron	6.7	4,500 [5]	300,000 [6]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10
Chromium	30	770	6,300	56	362	100	12
Copper	25	NL	>10,000	120	107	200	18
Lead	20	250	3,300	78	210	200	31
Nickel	7.6	400 [5]	6,000 [6]	33	320	200	9
Zinc	53	7,400 [5]	400,000 [6]	175	1,160	500	54
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.03*
Asbestos (SQ)							
AF/FA	ND	< 0.001	< 0.001	ND	Soils only	Soils & ACM	ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Pr Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Pr Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined: Above background concentrations
RED: Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD: Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND: Not detected
NL: No limit
NS: Not stated
- Not tested for
Above cleanfill acceptance criteria
Above managed fill acceptance criteria
Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area C Fill								
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22	
Sample Name							TP17 0.7m	TP17 3.7m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.65m-0.75m	3.65m-3.75m
Lab Number							3113975.30	3113975.31
Soil Strata Type							4	5
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**							
Arsenic	6.8	21	70	17	70	100	5	*34*
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	210
Cadmium	0.22	110	1,300	0.8	1.2	20	0.32	*2.9*
Chromium	30	770	6,300	56	362	100	12	27
Copper	25	NL	>10,000	120	107	200	32	*89*
Lead	20	250	3,300	78	210	200	*250*	*270*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	9	31
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	175	*960*
PAHs								
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04*	0.46
Asbestos (SQ)								
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	**0.009**
% ACM	ND	< 0.01	< 0.05				ND	< 0.01

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 fc Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 fc Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area C Natural Ground							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22
Sample Name							TP18 1.2m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	1.15m-1.25m
Lab Number							3113975.33
Soil Strata Type							6
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10
Chromium	30	770	6,300	56	362	100	8
Copper	25	NL	>10,000	120	107	200	13
Lead	20	250	3,300	78	210	200	21
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	31
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area C Topsoil								
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22	
Sample Name							TP17 SUR	TP18 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.15m	0.0m-0.15m
Lab Number							3113975.29	3113975.32
Soil Strata Type							1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**							
Arsenic	6.8	21	70	17	70	100	4	6
Boron	6.7	4,500 [5]	300,000 [6]	15	260	500	< 20	84
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10	0.26
Chromium	30	770	6,300	56	362	100	6	11
Copper	25	NL	>10,000	120	107	200	13	32
Lead	20	250	3,300	78	210	200	20	*73*
Nickel	7.6	400 [5]	6,000 [6]	33	320	200	5	17
Zinc	53	7,400 [5]	400,000 [6]	175	1,160	500	44	110
PAHs								
BaP (Eq) NES	ND	11	35	2	35	NL	0.21	0.04
Asbestos (SQ)								
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	**0.002**
% ACM	ND	< 0.01	< 0.05				ND	< 0.01

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

6. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

7. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

8. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area D Fill								
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22	
Sample Name							TP27 1.0m	TP30 1.5m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.95m-1.05m	1.45m-1.55m
Lab Number							3113975.52	3113975.59
Soil Strata Type							4	4
Heavy Metals	**95% upper limit for background (mg/kg)**							
(mg/kg dry weight)								
Arsenic	6.8	21	70	17	70	100	5	6
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.24	0.32
Chromium	30	770	6,300	56	362	100	13	15
Copper	25	NL	>10,000	120	107	200	29	37
Lead	20	250	3,300	78	210	200	*220*	*470*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	6	8
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	139	*250*
PAHs								
BaP (Eq) NES	ND	11	35	2	35	NL	1.24	0.25
Asbestos (SQ)								
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	**0.004**	ND
% ACM	ND	< 0.01	< 0.05				< 0.01	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Fraser Thomas

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area D Natural Grounc												
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22					9-Nov-22
Sample Name							TP27 1.7m	TP28 0.5m	TP29 0.3m	TP30 3.5m	TP31 1.0m	TR29 2.9m
Sample Depth (m)							1.65m-1.75m	0.45m-0.55m	0.25m-0.35m	3.45m-3.55m	1.45m-1.55m	2.85m-2.95m
Lab Number							3113975.53	3113975.55	3113975.57	3113975.59	3113975.62	3113975.70
Soil Strata Type												
Heavy Metals				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	6	6	6	5	6	6
(mg/kg dry weight)	**95% upper limit for background (mg/kg)**											
Arsenic	6.8	21	70	17	70	100	2	2	< 2	6	2	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10	< 0.10	< 0.10	0.32	< 0.10	< 0.10
Chromium	30	770	6,300	56	362	100	8	6	7	15	6	7
Copper	25	NL	>10,000	120	107	200	12	13	11	37	10	9
Lead	20	250	3,300	78	210	200	25	14.7	15.7	*470*	15.5	25
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	4	4	4	8	3	3
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	34	36	41	*250*	32	36
PAHs												
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04	< 0.05	< 0.04	< 0.04	< 0.04	< 0.04
Asbestos (SQ)												
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area D Topsoil											
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22				
Sample Name							TP27 SUR	TP28 SUR	TP29 SUR	TP30 SUR	TP31 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m
Lab Number							3113975.51	3113975.54	3113975.56	3113975.58	3113975.61
Soil Strata Type							1	1	1	1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**										
Arsenic	6.8	21	70	17	70	100	4	3	3	4	4
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	< 20	35
Cadmium	0.22	110	1,300	0.8	1.2	20	0.26	0.12	< 0.10	0.27	0.22
Chromium	30	770	6,300	56	362	100	13	17	9	18	11
Copper	25	NL	>10,000	120	107	200	34	17	15	23	25
Lead	20	250	3,300	78	210	200	48	22	19.1	32	25
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	10	9	4	10	8
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	118	68	52	95	85
PAHs											
BaP (Eq) NES	ND	11	35	2	35	NL	0.32	< 0.03	0.11	0.09	0.07
Asbestos (SQ)											
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area E Natural Ground							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22
Sample Name							TP25 2.0m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	1.95m-2.05m
Lab Number							3113975.47
Soil Strata Type							6
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10
Chromium	30	770	6,300	56	362	100	7
Copper	25	NL	>10,000	120	107	200	13
Lead	20	250	3,300	78	210	200	17.9
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	27
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area E Topsoil							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22
Sample Name							TP25 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.15m
Lab Number							3113975.46
Soil Strata Type							1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	3
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.14
Chromium	30	770	6,300	56	362	100	24
Copper	25	NL	>10,000	120	107	200	18
Lead	20	250	3,300	78	210	200	17.8
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	12
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	79
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.03
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area F Cap							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			9-Nov-22
Sample Name							TR27 0.3m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.25m-0.35m
Lab Number							3113975.50
Soil Strata Type							2
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	4
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.11
Chromium	30	770	6,300	56	362	100	23
Copper	25	NL	>10,000	120	107	200	19
Lead	20	250	3,300	78	210	200	18.5
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	<u>13</u>
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	<u>68</u>
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	<u>< 0.03*</u>
Asbestos (SQ)				ND	Soils only	Soils & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

<u>Underlined:</u>	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area F Fill								
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22	
Sample Name							TP26 0.8m	TP26 1.5m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.75m-0.85m	1.45m-1.55m
Lab Number							3113975.49	3113975.50
Soil Strata Type							4 (Mainly Medical Waste)	4 (Mainly Medical Waste)
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**							
Arsenic	6.8	21	70	17	70	100	2	< 2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.22	< 0.10
Chromium	30	770	6,300	56	362	100	9	5
Copper	25	NL	>10,000	120	107	200	14	13
Lead	20	250	3,300	78	210	200	21	13.9
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	5	3
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	91	47
PAHs								
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04	< 0.04
Asbestos (SQ)				ND	Soils only	Soils & ACM		
AF/FA	ND	< 0.001	< 0.001				ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area F Natural Ground							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			9-Nov-22
Sample Name							TR27 4.8m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	4.75m-4.85m
Lab Number							3113975.60
Soil Strata Type							6
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10
Chromium	30	770	6,300	56	362	100	5
Copper	25	NL	>10,000	120	107	200	10
Lead	20	250	3,300	78	210	200	11.9
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	3
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	33
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04
Asbestos (SQ)				ND	Soils only	Soils & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area F Topsoil							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			4-Nov-22
Sample Name							TP26 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.15m
Lab Number							3113975.48
Soil Strata Type							1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	3
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.11
Chromium	30	770	6,300	56	362	100	18
Copper	25	NL	>10,000	120	107	200	17
Lead	20	250	3,300	78	210	200	19.1
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	10
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	<u>61</u>
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.03
Asbestos (SQ)				ND	Soils only	Soils & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

<u>Underlined:</u>	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area G Fill							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22
Sample Name							TR22 1.0m
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.95m-1.05m
Lab Number							3113975.80
Soil Strata Type							4 (Reworked Natural)
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	4
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10
Chromium	30	770	6,300	56	362	100	8
Copper	25	NL	>10,000	120	107	200	19
Lead	20	250	3,300	78	210	200	21
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	55
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04*
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

* - Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 –
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)
7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area G Natural Ground

Sample Date	Background Concentrations [1]	NESCS rural residential/lifestyle block – no produce [2]	NESCS commercial/ industrial outdoor worker (unpaved) [3]	Waste Acceptance Criteria			3-Nov-22					
Sample Name							TP19 0.8m	TP20 1.5m	TP21 1.0m	TP22 1.0m	TP23 1.2m	TP24 1.5m
Sample Depth (m)				WRC Cleanfill Criteria	Envirofill South (Managed Fill)	Hampton Downs landfill	0.75m-0.85m	1.45m-1.55m	0.95m-1.05m	0.95m-1.05m	1.15m-1.25m	1.45m-1.55m
Lab Number							3113975.35	3113975.37	3113975.39	3113975.41	3113975.43	3113975.45
Soil Strata Type							6	6	5	6	6	6
Heavy Metals (mg/kg dry weight)	95% upper limit for background (mg/kg)											
Arsenic	6.8	21	70	17	70	100	2	< 2	3	2	3	2
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10
Chromium	30	770	6,300	56	362	100	4	4	6	4	7	6
Copper	25	NL	>10,000	120	107	200	10	10	10	10	15	12
Lead	20	250	3,300	78	210	200	9.7	10.8	24	10	14.3	11
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	2	2	4	2	4	3
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	34	34	340	36	41	39
PAHs												
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Asbestos (SQ)												
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND	ND

Note:

* = Residual concentrations of other PAHs detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area G Topsoil												
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			3-Nov-22					
Sample Name							TP19 SUR	TP20 SUR	TP21 SUR	TP22 SUR	TP23 SUR	TP24 SUR
Sample Depth (m)							0.0m-0.15m	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m	0.0m-0.15m
Lab Number							3113975.34	3113975.36	3113975.38	3113975.40	3113975.42	3113975.44
Soil Strata Type				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	1	1	1	1	1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**											
Arsenic	6.8	21	70	17	70	100	6	5	3	4	4	3
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	60	26	< 20	22	25	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.34	0.25	0.11	0.22	0.19	< 0.10
Chromium	30	770	6,300	56	362	100	12	11	7	8	7	7
Copper	25	NL	>10,000	120	107	200	40	31	14	26	18	13
Lead	20	250	3,300	78	210	200	56	65	39	33	26	21
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	16	11	5	8	14	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	112	107	55	136	89	74
PAHs												
BaP (Eq) NES	ND	11	35	2	35	NL	0.54	0.13	0.1	0.08	0.07	< 0.04
Asbestos (SQ)												
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	< 0.001*	ND	ND	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				< 0.01	ND	ND	ND	ND	ND

Note:

* - Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area H Fill								
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			9-Nov-22	
Sample Name							TP32 0.5m	TP34 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.45m-0.55m	0.0m-0.15m
Lab Number							3113975.20	3113975.15
Soil Strata Type							4	4
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**							
Arsenic	6.8	21	70	17	70	100	*95*	*16*
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	240	98
Cadmium	0.22	110	1,300	0.8	1.2	20	*2.3*	0.46
Chromium	30	770	6,300	56	362	100	51	19
Copper	25	NL	>10,000	120	107	200	*300*	*69*
Lead	20	250	3,300	78	210	200	*550*	*940*
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	47	15
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	*2700*	*320*
PAHs								
BaP (Eq) NES	ND	11	35	2	35	NL	0.04	0.04
Asbestos (SQ)								
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	< 0.001*	**0.003**
% ACM	ND	< 0.01	< 0.05				< 0.01	< 0.01

Note:

* - Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
RED:	Exceeded NES:CS Residential/Lifestyle Block/BRANZ guidleine
BOLD:	Exceeded NES:CS Commercial/Industrial Outdoor Worker
ND:	Not detected
NL:	No limit
NS:	Not stated
-	Not tested for
	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area H Natural Ground

Sample Date	Background Concentrations [1]	NESCS rural residential/lifestyle block – no produce [2]	NESCS commercial/ industrial outdoor worker (unpaved) [3]	Waste Acceptance Criteria			9-Nov-22		
Sample Name							TP32 1.5m	TP33 0.5m	TP34 0.5
Sample Depth (m)							1.45m-1.55m	0.45m-0.55m	0.45m-0.55m
Lab Number							3113975.21	3113975.18	3113975.16
Soil Strata Type							5	6	5
Heavy Metals (mg/kg dry weight)	95% upper limit for background (mg/kg)			WRC Cleanfill Criteria	Envirofill South (Managed Fill)	Hampton Downs landfill			
Arsenic	6.8	21	70	17	70	100	2	3	3
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	< 0.10	< 0.10	< 0.10
Chromium	30	770	6,300	56	362	100	7	8	8
Copper	25	NL	>10,000	120	107	200	17	15	16
Lead	20	250	3,300	78	210	200	21	18.2	17.9
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	4	4	4
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	43	39	33
PAHs									
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04	< 0.04	< 0.04
Asbestos (SQ)									
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/
2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.
3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.
4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Low Density Residential land use
5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use
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	Above cleanfill acceptance criteria
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	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

J:\33 series\33097 LINZ Tokanui Hospital\Intrusive Investigation\Results

Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area H Topsoil											
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			9-Nov-22		20-Apr-23		
Sample Name							TP32 SUR	TP33 SUR	TP37 SUR	TP54 SUR	TP55 SUR
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.15m	0.0m-0.15m	0.15m-0.25m	0.05m-0.15m	0.05m-0.15m
Lab Number							3113975.19	3113975.17	3257173.40	3257173.32	3257173.33
Soil Strata Type							1	1	1	1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**										
Arsenic	6.8	21	70	17	70	100	5	5	7	6	7
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.19	0.24	0.27	0.23	< 0.10
Chromium	30	770	6,300	56	362	100	16	13	14	13	17
Copper	25	NL	>10,000	120	107	200	44	28	44	39	37
Lead	20	250	3,300	78	210	200	25	68	47	76	28
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	10	8	23	8	10
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	85	164	110	112	70
PAHs											
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.04*	0.05	0.31	< 0.031	< 0.025
Asbestos (SQ)											
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	< 0.001	**0.004**	< 0.001
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

4. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental

5. No Soil Contaminant Standards for health (SCSs (health)) given, guideline values derived in accordance with the Contaminated Land Management Guidelines number 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011), and taken from the National Environment Protection (Assessment of Site Contamination) Measure 2013 for Commercial/Industrial land use

6. BRANZ 2017 Asbestos in Soil guidelines of 0.01% w/w % ACM or 0.001% w/w for % FA & AF fraction for Residential sites (Residential guidelines applied to assess risk to Remedial workers)

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	Above managed fill acceptance criteria
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Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area I Fill													
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			20-Apr-23						
Sample Name							HA01	TP46	TP50	TP50	TP51	TP57	TP57
Sample Depth (m)							0.2-0.6m	0.25-0.35m	0.25-0.35m	0.45-0.55m	0.20-0.30m	0.75-0.85m	1.45-1.55m
Lab Number							3257173.10	3257173.22	3257173.27	3257173.28	3257173.30	3257173.36	3257173.37
Soil Strata Type				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	4	4	4	4	4	4	4
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**												
Arsenic	6.8	21	70	17	70	100	5	5	5	5	5	6	5
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	30	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.19	0.36	0.14	0.18	0.51	0.23	0.13
Chromium	30	770	6,300	56	362	100	14	14	15	13	10	18	14
Copper	25	NL	>10,000	120	107	200	48	47	35	36	49	141	40
Lead	20	250	3,300	78	210	200	96	19.6	34	57	20	66	47
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	8	7	8	13	5	8	6
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	116	87	78	83	115	86	74
PAHs													
BaP (Eq) NES	ND	11	35	2	35	NL	0.67	< 0.038	0.33	0.58	< 0.038	0.193	0.98
Asbestos (SQ)													
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	< 0.001*	< 0.001*	ND	ND	ND
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND	ND	ND

Note:

* - Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

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	Above cleanfill acceptance criteria
	Above managed fill acceptance criteria
	Above Class 1 landfill acceptance criteria

Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
6	Natural ground

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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area I Natural Ground							
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			20-Apr-23
Sample Name							TP56
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	2.25-2.35m
Lab Number							3257173.35
Soil Strata Type							5
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**						
Arsenic	6.8	21	70	17	70	100	6
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.57
Chromium	30	770	6,300	56	362	100	11
Copper	25	NL	>10,000	120	107	200	46
Lead	20	250	3,300	78	210	200	24
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	6
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	155
PAHs							
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.043
Asbestos (SQ)				ND	AF/FA Only	AF/FA & ACM	
AF/FA	ND	< 0.001	< 0.001				ND
% ACM	ND	< 0.01	< 0.05				ND

Note:

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

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Soil Strata Type

1	Topsoil
2	Landfill cap
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Former Tokanui Psychiatric Hospital Closed Landfill: Soil Results Area I Topsoil														
Sample Date	**Background Concentrations [1]**	**NESCS rural residential/lifestyle block – no produce [2]**	**NESCS commercial/ industrial outdoor worker (unpaved) [3]**	**Waste Acceptance Criteria**			20-Apr-23							
Sample Name							TP46	TP47	TP48	TP49	TP50	TP51	TP52	TP56
Sample Depth (m)				**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m	0.0m-0.1m
Lab Number							3257173.21	3257173.23	3257173.24	3257173.25	3257173.26	3257173.29	3257173.31	3257173.34
Soil Strata Type							1	1	1	1	1	1	1	1
Heavy Metals (mg/kg dry weight)	**95% upper limit for background (mg/kg)**													
Arsenic	6.8	21	70	17	70	100	6	6	5	4	5	6	5	8
Boron	6.7	4,500 [4]	300,000 [5]	15	260	500	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Cadmium	0.22	110	1,300	0.8	1.2	20	0.24	0.54	0.44	0.35	0.14	0.23	0.1	0.4
Chromium	30	770	6,300	56	362	100	17	12	9	9	12	15	13	13
Copper	25	NL	>10,000	120	107	200	47	47	37	31	33	57	30	42
Lead	20	250	3,300	78	210	200	21	26	25	21	34	47	21	27
Nickel	7.6	400 [4]	6,000 [5]	33	320	200	8	6	5	5	8	9	9	6
Zinc	53	7,400 [4]	400,000 [5]	175	1,160	500	72	104	122	113	55	92	47	97
PAHs														
BaP (Eq) NES	ND	11	35	2	35	NL	< 0.037	< 0.040	< 0.036*	< 0.035*	0.48	0.29	0.09	< 0.035*
Asbestos (SQ)														
AF/FA	ND	< 0.001	< 0.001	ND	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND	ND	ND	ND	0.003
% ACM	ND	< 0.01	< 0.05				ND	ND	ND	ND	ND	ND	ND	ND

Note:

* = Residual concentrations detected

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to rural residential/lifestyle block - no produce (unpublished) land use have been selected.

3. Resource Management (National Environmental Standard for Assessing and managing Contaminants in Soil to Protect Human Health) Regulation 2012 (NES:CS) - Soil contaminant standards (SCS) applicable to Commercial/Industrial outdoor worker (unpaved) land use have been selected.

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7. BRANZ 2017 Asbestos in Soil guidelines of 0.05% w/w % ACM or 0.001% w/w for % FA & AF fraction for Commercial/Industrial sites.

Underlined:	Above background concentrations
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Soil Strata Type

1	Topsoil
2	Landfill cap
3	Interface of landfill cap and mixed fill
4	Mixed Fill
5	Interface of mixed fill and natural ground
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Tokonui Landfill Monitoring: Stream Sediment Results									
Sample Date	**Background Concentrations[1]**		**Waste Acceptance Criteria**			17-Apr-23			
Sample Name						S1	S3	S4	S2
Lab Number						3247082.60	3247082.80	3247082.90	3247082.70
Heavy Metals	**95% upper limit for background (mg/kg)**	**ISQG-Low (Trigger Value)[2]**	**WRC Cleanfill Criteria**	**Envirofill South (Managed Fill)**	**Hampton Downs landfill**				
(mg/kg dry weight)									
Arsenic	6.8	60	17	70	100	5	6	4	8
Boron	6.7	-	15	260	500	< 20	31	< 20	< 20
Cadmium	0.22	4.5	0.8	1.2	20	< 0.10	0.52	0.27	0.7
Chromium	30	240	56	362	100	7	12	9	12
Copper	25	195	120	107	200	14	24	15	22
Lead	20	150	78	210	200	10.2	18.9	14	15.5
Nickel	7.6	63	33	320	200	4	6	4	7
Zinc	53	600	175	1,160	500	28	129	68	151
PAHs									
Bap Eq	ND	-	2	35	1	< 0.058*	< 0.061	< 0.058*	< 0.14
Asbestos			NA	AF/FA Only	AF/FA & ACM	ND	ND	ND	ND
AF/FA	ND	-				-	-	-	-
ACM %	ND	-				-	-	-	-

Notes: * perylene detected in these samples at just above lab detection limits

1. Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data, sourced from: https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/

2. ANZECC ISQG-Low (Trigger Value) recommended sediment quality guidelines with 3x dilution factor, as recommended by Ecan for considering potential environmental effects

Underlined: Above background concentrations

Bold above ANZECC ISQG-Low guidelines

\- Not tested for

Above cleanfill acceptance criteria

Above managed fill acceptance criteria

Above Class A landfill acceptance criteria

Hill Laboratories
TRIED, TESTED AND TRUSTED

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Hamilton 3240 New Zealand

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Certificate of Analysis

Client:	Fraser Thomas Limited	**Lab No:**	3108552	SPv3
Contact:	Elliot Bish	**Date Received:**	02-Nov-2022	
	C/- Fraser Thomas Limited	**Date Reported:**	23-Feb-2023	**(Amended)**
	PO Box 204006	**Quote No:**	118001	
	Highbrook	**Order No:**	PO000796	
	Auckland 2161	**Client Reference:**	33097	
		Submitted By:	Elliot Bish	

Sample Type: Soil

Sample Name:		TP1 Sur	TP1 0.6m	TP1 2.0m	TP2 Sur	TP2 1.8m
Lab Number:		3108552.1	3108552.2	3108552.3	3108552.4	3108552.5
Individual Tests						
Dry Matter	g/100g as rcvd	79	72	76	71	78
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	5	22	9	8
Total Recoverable Boron	mg/kg dry wt	27	32	122	480	64
Total Recoverable Cadmium	mg/kg dry wt	0.22	0.14	1.22	0.22	0.31
Total Recoverable Chromium	mg/kg dry wt	11	11	25	12	16
Total Recoverable Copper	mg/kg dry wt	27	28	99	30	39
Total Recoverable Lead	mg/kg dry wt	83	61	179	47	810
Total Recoverable Nickel	mg/kg dry wt	33	10	23	40	12
Total Recoverable Zinc	mg/kg dry wt	84	73	1,010	119	250
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	1.7	4.2	4.4	0.8	0.8
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.013	0.018	< 0.013	< 0.014	< 0.013
Acenaphthene	mg/kg dry wt	< 0.013	< 0.014	0.013	< 0.014	< 0.013
Anthracene	mg/kg dry wt	0.023	0.050	0.071	0.019	< 0.013
Benzo[a]anthracene	mg/kg dry wt	0.137	0.37	0.35	0.058	0.056
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.170	0.42	0.40	0.070	0.096
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.24	0.61	0.58	0.095	0.134
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.24	0.61	0.57	0.094	0.134
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.193	0.49	0.46	0.077	0.112
Benzo[e]pyrene	mg/kg dry wt	0.097	0.23	0.22	0.041	0.069
Benzo[g,h,i]perylene	mg/kg dry wt	0.103	0.24	0.23	0.037	0.083
Benzo[k]fluoranthene	mg/kg dry wt	0.076	0.195	0.195	0.031	0.040
Chrysene	mg/kg dry wt	0.138	0.39	0.35	0.055	0.056
Dibenzo[a,h]anthracene	mg/kg dry wt	0.018	0.050	0.047	< 0.014	< 0.013
Fluoranthene	mg/kg dry wt	0.27	0.66	0.77	0.130	0.076
Fluorene	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.101	0.25	0.26	0.035	0.059
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.043	0.101	0.102	0.019	0.025
Phenanthrene	mg/kg dry wt	0.069	0.107	0.20	0.069	0.020
Pyrene	mg/kg dry wt	0.25	0.64	0.67	0.108	0.087

Sample Type: Soil						
Sample Name:		TP2 3.0m	TP3 Sur	TP3 0.7m	TP3 2.0m	TP4 Sur
Lab Number:		3108552.6	3108552.7	3108552.8	3108552.9	3108552.10
Individual Tests						
Dry Matter	g/100g as rcvd	62	74	88	76	75
TCLP Weight of Sample Taken	g	-	-	-	50	-
TCLP Initial Sample pH	pH Units	-	-	-	9.3	-
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	2.1	-
TCLP Extractant Type*		-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-
TCLP Extraction Fluid pH	pH Units	-	-	-	5.0	-
TCLP Post Extraction Sample pH	pH Units	-	-	-	5.9	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	20	5	< 2	38	5
Total Recoverable Boron	mg/kg dry wt	720	25	< 20	250	< 20
Total Recoverable Cadmium	mg/kg dry wt	9.9	0.18	< 0.10	3.3	0.19
Total Recoverable Chromium	mg/kg dry wt	36	9	8	37	10
Total Recoverable Copper	mg/kg dry wt	161	23	15	250	24
Total Recoverable Lead	mg/kg dry wt	380	36	18.4	1,370	43
Total Recoverable Nickel	mg/kg dry wt	54	9	4	24	7
Total Recoverable Zinc	mg/kg dry wt	390	68	55	2,200	73
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	6.0	2.2	< 0.3	0.4	3.3
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.014	< 0.012	< 0.014	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.014	< 0.012	< 0.014	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.014	< 0.012	< 0.014	0.015
Acenaphthene	mg/kg dry wt	< 0.016	< 0.014	< 0.012	< 0.014	0.015
Anthracene	mg/kg dry wt	0.074	0.035	< 0.012	< 0.014	0.045
Benzo[a]anthracene	mg/kg dry wt	0.48	0.159	< 0.012	0.033	0.23
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.55	0.21	0.013	0.051	0.34
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.82	0.30	< 0.027	0.070	0.50
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.81	0.30	< 0.027	0.069	0.50
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.70	0.24	0.013	0.059	0.40
Benzo[e]pyrene	mg/kg dry wt	0.32	0.119	0.012	0.035	0.21
Benzo[g,h,i]perylene	mg/kg dry wt	0.32	0.131	0.021	0.043	0.25
Benzo[k]fluoranthene	mg/kg dry wt	0.29	0.096	< 0.012	0.021	0.152
Chrysene	mg/kg dry wt	0.54	0.164	< 0.012	0.032	0.24
Dibenzo[a,h]anthracene	mg/kg dry wt	0.073	0.023	< 0.012	< 0.014	0.049
Fluoranthene	mg/kg dry wt	0.99	0.34	0.014	0.046	0.46
Fluorene	mg/kg dry wt	< 0.016	< 0.014	< 0.012	< 0.014	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.36	0.131	0.012	0.028	0.26
Naphthalene	mg/kg dry wt	< 0.08	< 0.07	< 0.06	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.139	0.051	< 0.012	< 0.014	0.092
Phenanthrene	mg/kg dry wt	0.26	0.121	< 0.012	0.013	0.158
Pyrene	mg/kg dry wt	0.89	0.32	0.013	0.044	0.42

Sample Name:		TP4 1.0m	TP4 4.0m	TP5 Sur	TP5 2.0m	TP5 3.0m
Lab Number:		3108552.11	3108552.12	3108552.13	3108552.14	3108552.15
Individual Tests						
Dry Matter	g/100g as rcvd	80	73	75	66	68
TCLP Weight of Sample Taken	g	-	-	-	-	50
TCLP Initial Sample pH	pH Units	-	-	-	-	9.2
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	-	2.3
TCLP Extractant Type*		-	-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05
TCLP Extraction Fluid pH	pH Units	-	-	-	-	5.0
TCLP Post Extraction Sample pH	pH Units	-	-	-	-	6.7

Sample Type: Soil						
Sample Name:		TP4 1.0m	TP4 4.0m	TP5 Sur	TP5 2.0m	TP5 3.0m
Lab Number:		3108552.11	3108552.12	3108552.13	3108552.14	3108552.15
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	3	4	32	17
Total Recoverable Boron	mg/kg dry wt	23	21	300	820	1,040
Total Recoverable Cadmium	mg/kg dry wt	0.12	< 0.10	< 0.10	0.84	2.7
Total Recoverable Chromium	mg/kg dry wt	9	6	10	14	20
Total Recoverable Copper	mg/kg dry wt	19	10	26	46	98
Total Recoverable Lead	mg/kg dry wt	58	15.6	24	690	370
Total Recoverable Nickel	mg/kg dry wt	11	3	19	15	70
Total Recoverable Zinc	mg/kg dry wt	75	35	47	330	720
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	1.7	< 0.4	0.3	< 0.4	0.8
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.015	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.015	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.015	< 0.015
Acenaphthene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.015	< 0.015
Anthracene	mg/kg dry wt	0.022	< 0.014	< 0.013	< 0.015	< 0.015
Benzo[a]anthracene	mg/kg dry wt	0.133	< 0.014	0.026	< 0.015	0.045
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.170	< 0.014	0.032	0.016	0.066
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.24	< 0.033	0.043	< 0.035	0.093
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.24	< 0.033	0.042	< 0.035	0.092
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.183	< 0.014	0.037	0.019	0.082
Benzo[e]pyrene	mg/kg dry wt	0.094	< 0.014	0.018	< 0.015	0.048
Benzo[g,h,i]perylene	mg/kg dry wt	0.114	< 0.014	0.014	< 0.015	0.053
Benzo[k]fluoranthene	mg/kg dry wt	0.077	< 0.014	0.015	< 0.015	0.032
Chrysene	mg/kg dry wt	0.134	< 0.014	0.025	< 0.015	0.048
Dibenzo[a,h]anthracene	mg/kg dry wt	0.015	< 0.014	< 0.013	< 0.015	< 0.015
Fluoranthene	mg/kg dry wt	0.26	< 0.014	0.054	< 0.015	0.102
Fluorene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.015	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.110	< 0.014	0.015	< 0.015	0.043
Naphthalene	mg/kg dry wt	< 0.06	< 0.07	< 0.07	< 0.08	< 0.08
Perylene	mg/kg dry wt	0.046	< 0.014	< 0.013	< 0.015	0.021
Phenanthrene	mg/kg dry wt	0.069	< 0.014	0.016	< 0.015	0.042
Pyrene	mg/kg dry wt	0.26	< 0.014	0.050	< 0.015	0.099

Sample Name:		TP6 Sur	TP6 1.5m	TP6 3.0m	TP7 Sur	TP7 1.8m
Lab Number:		3108552.16	3108552.17	3108552.18	3108552.19	3108552.20
Individual Tests						
Dry Matter	g/100g as rcvd	74	74	69	65	76
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	11	11	5	16
Total Recoverable Boron	mg/kg dry wt	< 20	510	760	21	290
Total Recoverable Cadmium	mg/kg dry wt	0.18	0.48	1.14	0.31	1.05
Total Recoverable Chromium	mg/kg dry wt	9	17	20	11	22
Total Recoverable Copper	mg/kg dry wt	24	42	47	37	58
Total Recoverable Lead	mg/kg dry wt	35	133	121	36	157
Total Recoverable Nickel	mg/kg dry wt	8	46	37	9	17
Total Recoverable Zinc	mg/kg dry wt	82	250	270	180	780
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	2.0	2.5	< 0.4	1.3	1.5
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.014	< 0.016	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.014	< 0.016	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.014	< 0.014	< 0.016	< 0.013
Acenaphthene	mg/kg dry wt	< 0.014	< 0.014	< 0.014	< 0.016	< 0.013
Anthracene	mg/kg dry wt	0.028	0.042	< 0.014	< 0.016	0.015
Benzo[a]anthracene	mg/kg dry wt	0.142	0.198	< 0.014	0.098	0.108

Sample Type: Soil						
Sample Name:		TP6 Sur	TP6 1.5m	TP6 3.0m	TP7 Sur	TP7 1.8m
Lab Number:		3108552.16	3108552.17	3108552.18	3108552.19	3108552.20
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.162	0.26	0.016	0.141	0.159
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.23	0.36	< 0.034	0.193	0.23
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.23	0.36	< 0.034	0.191	0.23
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.195	0.27	0.019	0.153	0.21
Benzo[e]pyrene	mg/kg dry wt	0.092	0.148	< 0.014	0.080	0.113
Benzo[g,h,i]perylene	mg/kg dry wt	0.094	0.166	< 0.014	0.078	0.129
Benzo[k]fluoranthene	mg/kg dry wt	0.076	0.107	< 0.014	0.063	0.080
Chrysene	mg/kg dry wt	0.145	0.194	< 0.014	0.101	0.112
Dibenzo[a,h]anthracene	mg/kg dry wt	0.017	0.026	< 0.014	< 0.016	0.019
Fluoranthene	mg/kg dry wt	0.36	0.36	0.024	0.20	0.178
Fluorene	mg/kg dry wt	< 0.014	< 0.014	< 0.014	< 0.016	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.097	0.152	< 0.014	0.081	0.121
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.08	< 0.07
Perylene	mg/kg dry wt	0.036	0.064	< 0.014	0.033	0.049
Phenanthrene	mg/kg dry wt	0.166	0.124	< 0.014	0.054	0.058
Pyrene	mg/kg dry wt	0.31	0.40	0.022	0.192	0.155

Sample Name:		TP7 3.0m	TP8 Sur	TP8 1.0m	TP8 2.0m	TP9 Sur
Lab Number:		3108552.21	3108552.22	3108552.23	3108552.24	3108552.25
Individual Tests						
Dry Matter	g/100g as rcvd	72	62	73	71	74
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	3	5	4	17	4
Total Recoverable Boron	mg/kg dry wt	68	< 20	< 20	176	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.25	< 0.10	3.2	0.12
Total Recoverable Chromium	mg/kg dry wt	7	9	11	42	11
Total Recoverable Copper	mg/kg dry wt	13	34	20	124	22
Total Recoverable Lead	mg/kg dry wt	21	37	19.4	500	30
Total Recoverable Nickel	mg/kg dry wt	3	9	7	25	6
Total Recoverable Zinc	mg/kg dry wt	54	161	51	750	67
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	2.1	< 0.4	1.3	1.0
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.016	< 0.014	< 0.014	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.016	< 0.014	< 0.014	< 0.014
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.016	< 0.014	< 0.014	< 0.014
Acenaphthene	mg/kg dry wt	< 0.014	< 0.016	< 0.014	< 0.014	< 0.014
Anthracene	mg/kg dry wt	< 0.014	0.030	< 0.014	0.015	< 0.014
Benzo[a]anthracene	mg/kg dry wt	< 0.014	0.159	< 0.014	0.097	0.072
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	0.20	< 0.014	0.138	0.102
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.033	0.29	< 0.033	0.196	0.146
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.033	0.29	< 0.033	0.194	0.145
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.014	0.24	< 0.014	0.159	0.125
Benzo[e]pyrene	mg/kg dry wt	< 0.014	0.121	< 0.014	0.088	0.068
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	0.130	< 0.014	0.107	0.070
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	0.095	< 0.014	0.063	0.052
Chrysene	mg/kg dry wt	< 0.014	0.157	< 0.014	0.102	0.077
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	0.024	< 0.014	< 0.014	< 0.014
Fluoranthene	mg/kg dry wt	< 0.014	0.33	< 0.014	0.169	0.145
Fluorene	mg/kg dry wt	< 0.014	< 0.016	< 0.014	< 0.014	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	0.133	< 0.014	0.094	0.069
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.014	0.051	< 0.014	0.033	0.027

Sample Type: Soil						
Sample Name:		TP7 3.0m	TP8 Sur	TP8 1.0m	TP8 2.0m	TP9 Sur
Lab Number:		3108552.21	3108552.22	3108552.23	3108552.24	3108552.25
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Phenanthrene	mg/kg dry wt	< 0.014	0.095	< 0.014	0.044	0.042
Pyrene	mg/kg dry wt	< 0.014	0.30	< 0.014	0.165	0.132

Sample Name:		TP9 1.5m	TP9 2.5m	TP10 Sur	TP10 0.8m	TP10 2.0m
Lab Number:		3108552.26	3108552.27	3108552.28	3108552.29	3108552.30
Individual Tests						
Dry Matter	g/100g as rcvd	72	69	77	67	61
TCLP Weight of Sample Taken	g	-	50	-	-	50
TCLP Initial Sample pH	pH Units	-	8.9	-	-	9.0
TCLP Acid Adjusted Sample pH	pH Units	-	2.7	-	-	3.1
TCLP Extractant Type*		-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05
TCLP Extraction Fluid pH	pH Units	-	5.0	-	-	5.0
TCLP Post Extraction Sample pH	pH Units	-	6.6	-	-	6.6
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	13	61	5	7	46
Total Recoverable Boron	mg/kg dry wt	1,320	730	45	1,230	1,720
Total Recoverable Cadmium	mg/kg dry wt	0.75	4.1	0.19	0.13	11.3
Total Recoverable Chromium	mg/kg dry wt	15	40	16	15	93
Total Recoverable Copper	mg/kg dry wt	61	114	28	25	157
Total Recoverable Lead	mg/kg dry wt	31	1,030	39	49	460
Total Recoverable Nickel	mg/kg dry wt	14	22	12	90	127
Total Recoverable Zinc	mg/kg dry wt	111	2,400	94	128	1,860
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	1.0	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.015	< 0.016
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	0.015	0.018
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.015	< 0.016
Acenaphthene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.015	< 0.016
Anthracene	mg/kg dry wt	< 0.014	< 0.015	0.013	< 0.015	< 0.016
Benzo[a]anthracene	mg/kg dry wt	0.021	< 0.015	0.077	< 0.015	< 0.016
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.024	< 0.015	0.096	< 0.015	< 0.016
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.033	< 0.035	0.135	< 0.035	< 0.039
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.033	< 0.035	0.134	< 0.035	< 0.039
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.033	0.023	0.120	< 0.015	< 0.016
Benzo[e]pyrene	mg/kg dry wt	0.017	< 0.015	0.060	< 0.015	< 0.016
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	< 0.015	0.058	< 0.015	< 0.016
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	< 0.015	0.050	< 0.015	< 0.016
Chrysene	mg/kg dry wt	0.020	< 0.015	0.078	0.015	< 0.016
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.015	< 0.016
Fluoranthene	mg/kg dry wt	0.039	0.024	0.150	< 0.015	0.017
Fluorene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.015	< 0.016
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	< 0.015	0.052	< 0.015	< 0.016
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	< 0.07	< 0.08	< 0.08
Perylene	mg/kg dry wt	0.017	< 0.015	0.025	0.031	< 0.016
Phenanthrene	mg/kg dry wt	< 0.014	0.017	0.038	0.016	< 0.016
Pyrene	mg/kg dry wt	0.037	0.019	0.138	< 0.015	< 0.016

Sample Name:		TP11 Sur	TP11 0.6m	TP11 1.5m	TP12 Sur	TP12 1.2m
Lab Number:		3108552.31	3108552.32	3108552.33	3108552.34	3108552.35
Individual Tests						
Dry Matter	g/100g as rcvd	66	72	67	71	70
TCLP Weight of Sample Taken	g	-	-	-	50	-
TCLP Initial Sample pH	pH Units	-	-	-	9.2	-
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	2.9	-

Sample Type: Soil						
Sample Name:		TP11 Sur	TP11 0.6m	TP11 1.5m	TP12 Sur	TP12 1.2m
Lab Number:		3108552.31	3108552.32	3108552.33	3108552.34	3108552.35
Individual Tests						
TCLP Extractant Type*		-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-
TCLP Extraction Fluid pH	pH Units	-	-	-	5.0	-
TCLP Post Extraction Sample pH	pH Units	-	-	-	6.6	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	3	3	9	9
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	960	1,660
Total Recoverable Cadmium	mg/kg dry wt	0.31	< 0.10	< 0.10	0.25	0.21
Total Recoverable Chromium	mg/kg dry wt	9	7	8	14	13
Total Recoverable Copper	mg/kg dry wt	22	10	13	31	29
Total Recoverable Lead	mg/kg dry wt	51	16.8	17.6	30	34
Total Recoverable Nickel	mg/kg dry wt	5	3	4	55	50
Total Recoverable Zinc	mg/kg dry wt	76	25	30	143	110
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	15.1	11.5
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.014	0.014
Acenaphthene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.033	0.036
Anthracene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.37	0.28
Benzo[a]anthracene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	1.23	0.90
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.015	< 0.014	< 0.015	1.13	0.97
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.036	< 0.034	< 0.035	1.70	1.44
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.036	< 0.033	< 0.035	1.67	1.42
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	1.40	1.17
Benzo[e]pyrene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.63	0.55
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.57	0.53
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.55	0.48
Chrysene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	1.23	0.89
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.144	0.128
Fluoranthene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	3.0	2.0
Fluorene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.036	0.036
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.66	0.58
Naphthalene	mg/kg dry wt	< 0.08	< 0.07	< 0.08	< 0.07	< 0.08
Perylene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	0.29	0.25
Phenanthrene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	1.18	0.76
Pyrene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	2.6	1.86

Sample Name:		TP12 2.7m	TP13 Sur	TP13 1.0m	TP13 3.2m
Lab Number:		3108552.36	3108552.37	3108552.38	3108552.39
Individual Tests					
Dry Matter	g/100g as rcvd	65	72	72	78
TCLP Weight of Sample Taken	g	-	-	50	-
TCLP Initial Sample pH	pH Units	-	-	9.0	-
TCLP Acid Adjusted Sample pH	pH Units	-	-	3.1	-
TCLP Extractant Type*		-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-
TCLP Extraction Fluid pH	pH Units	-	-	4.9	-
TCLP Post Extraction Sample pH	pH Units	-	-	6.1	-
7 Heavy metals plus Boron					
Total Recoverable Arsenic	mg/kg dry wt	2	5	10	16
Total Recoverable Boron	mg/kg dry wt	830	< 20	75	89
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.24	4.6	0.68
Total Recoverable Chromium	mg/kg dry wt	9	11	43	18

Sample Type: Soil					
Sample Name:		TP12 2.7m	TP13 Sur	TP13 1.0m	TP13 3.2m
Lab Number:		3108552.36	3108552.37	3108552.38	3108552.39
7 Heavy metals plus Boron					
Total Recoverable Copper	mg/kg dry wt	14	24	49	63
Total Recoverable Lead	mg/kg dry wt	18.0	73	350	189
Total Recoverable Nickel	mg/kg dry wt	6	8	11	14
Total Recoverable Zinc	mg/kg dry wt	32	115	250	380
Polycyclic Aromatic Hydrocarbons Screening in Soil*					
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	0.4	2.6	2.8
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.014	< 0.014	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.014	< 0.014	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.014	< 0.014	< 0.013
Acenaphthene	mg/kg dry wt	< 0.015	< 0.014	< 0.014	< 0.013
Anthracene	mg/kg dry wt	< 0.015	< 0.014	0.019	0.020
Benzo[a]anthracene	mg/kg dry wt	< 0.015	0.033	0.167	0.190
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.015	0.047	0.29	0.30
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.037	0.061	0.43	0.45
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.037	0.060	0.43	0.45
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.015	0.052	0.37	0.39
Benzo[e]pyrene	mg/kg dry wt	< 0.015	0.029	0.21	0.22
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.015	0.027	0.29	0.29
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	0.022	0.139	0.152
Chrysene	mg/kg dry wt	< 0.015	0.033	0.165	0.21
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.014	0.043	0.044
Fluoranthene	mg/kg dry wt	< 0.015	0.070	0.23	0.30
Fluorene	mg/kg dry wt	< 0.015	< 0.014	< 0.014	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.015	0.022	0.26	0.27
Naphthalene	mg/kg dry wt	< 0.08	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.015	< 0.014	0.094	0.093
Phenanthrene	mg/kg dry wt	< 0.015	0.025	0.037	0.040
Pyrene	mg/kg dry wt	< 0.015	0.060	0.23	0.27

Sample Type: Aqueous						
Sample Name:		TP3 2.0m [TCLP Extract]	TP5 3.0m [TCLP Extract]	TP9 2.5m [TCLP Extract]	TP10 2.0m [TCLP Extract]	TP12 Sur [TCLP Extract]
Lab Number:		3108552.40	3108552.41	3108552.42	3108552.43	3108552.44
Individual Tests						
Total Boron	g/m³	-	5.8	-	17.9	4.1
Total Copper	g/m³	0.029	-	-	-	-
Total Lead	g/m³	0.28	-	0.037	-	-
Total Zinc	g/m³	2.4	-	6.4	-	-

Sample Name:		TP13 1.0m [TCLP Extract]
Lab Number:		3108552.45
Individual Tests		
Total Lead	g/m³	0.0070

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3108552-SPv2' issued on 17-Nov-2022 at 3:31 pm.
Reason for amendment: TCLP metals added to 6 samples.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-39
Total of Reported PAHs in Soil	Sonication extraction, GC-MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1-39
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-39
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1-39
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1-39
7 Heavy metals plus Boron	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 20 mg/kg dry wt	1-39
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1-39
TCLP Profile*	Extraction at 30 +/- 2 rpm for 18 +/- 2 hours, (Ratio 1g sample : 20g extraction fluid). US EPA 1311.	-	9, 15, 27, 30, 34, 38
TCLP Profile			
TCLP Weight of Sample Taken	Gravimetric. US EPA 1311.	0.1 g	9, 15, 27, 30, 34, 38
TCLP Initial Sample pH	pH meter. US EPA 1311.	0.1 pH Units	9, 15, 27, 30, 34, 38
TCLP Acid Adjusted Sample pH	pH meter. US EPA 1311.	0.1 pH Units	9, 15, 27, 30, 34, 38
TCLP Extractant Type*	US EPA 1311.	-	9, 15, 27, 30, 34, 38
TCLP Extraction Fluid pH	pH meter. US EPA 1311.	0.1 pH Units	9, 15, 27, 30, 34, 38
TCLP Post Extraction Sample pH	pH meter. US EPA 1311.	0.1 pH Units	9, 15, 27, 30, 34, 38

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Total Digestion of Extracted Samples*	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	40-45
Total Boron	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.11 g/m^3	41, 43-44
Total Copper	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.011 g/m^3	40
Total Lead	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.0021 g/m^3	40, 42, 45
Total Zinc	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	40, 42

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 14-Nov-2022 and 23-Feb-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

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TRIED, TESTED AND TRUSTED

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Certificate of Analysis

Client:	Fraser Thomas Limited	**Lab No:**	3113975	SPv2
Contact:	Elliot Bish	**Date Received:**	10-Nov-2022	
	C/- Fraser Thomas Limited	**Date Reported:**	23-Feb-2023	**(Amended)**
	PO Box 204006	**Quote No:**	118001	
	Highbrook	**Order No:**	PO000796	
	Auckland 2161	**Client Reference:**	33097	
		Submitted By:	Ben Laing-McConnell	

Sample Type: Soil

Sample Name:		TR16 0.4m 10-Nov-2022	TR9 0.2m 10-Nov-2022	TR11 0.3m 10-Nov-2022	TR10 0.5m 10-Nov-2022	TR27 0.3m 10-Nov-2022
Lab Number:		3113975.1	3113975.2	3113975.3	3113975.4	3113975.5
Individual Tests						
Dry Matter	g/100g as rcvd	81	88	73	86	83
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	3	2	3	3	4
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	26	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	0.10	0.11
Total Recoverable Chromium	mg/kg dry wt	12	26	8	25	23
Total Recoverable Copper	mg/kg dry wt	18	17	16	21	19
Total Recoverable Lead	mg/kg dry wt	31	14.9	17.8	20	18.5
Total Recoverable Nickel	mg/kg dry wt	9	14	5	15	13
Total Recoverable Zinc	mg/kg dry wt	54	66	40	69	68
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	< 0.3	< 0.4	< 0.3	< 0.3
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.018	< 0.011	< 0.014	< 0.017	< 0.018
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Acenaphthene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Anthracene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Benzo[a]anthracene	mg/kg dry wt	0.017	< 0.011	< 0.014	0.017	0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.021	< 0.011	0.015	0.019	0.018
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.029	< 0.027	< 0.033	< 0.027	< 0.029
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.029	< 0.027	< 0.033	< 0.027	< 0.029
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.022	< 0.011	0.016	0.022	0.023
Benzo[e]pyrene	mg/kg dry wt	0.013	< 0.011	< 0.014	0.011	0.012
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Chrysene	mg/kg dry wt	0.014	< 0.011	< 0.014	0.013	0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Fluoranthene	mg/kg dry wt	0.026	< 0.011	0.019	0.027	0.030
Fluorene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.012	< 0.011	< 0.014	0.011	< 0.012
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	< 0.07	< 0.06	< 0.06
Perylene	mg/kg dry wt	< 0.012	< 0.011	< 0.014	< 0.012	< 0.012
Phenanthrene	mg/kg dry wt	0.016	< 0.011	< 0.014	0.013	0.018
Pyrene	mg/kg dry wt	0.026	< 0.011	0.017	0.029	0.029

Sample Type: Soil						
Sample Name:		TR27 OFFAL 4.8m 10-Nov-2022	TR29 2.9m 10-Nov-2022	TR22 1.0 10-Nov-2022	Dup07 10-Nov-2022	Dup08 10-Nov-2022
Lab Number:		3113975.6	3113975.7	3113975.8	3113975.9	3113975.10
Individual Tests						
Dry Matter	g/100g as rcvd	62	69	60	-	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	2	2	4	5	4
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	0.29	0.28
Total Recoverable Chromium	mg/kg dry wt	5	7	8	13	9
Total Recoverable Copper	mg/kg dry wt	10	9	19	28	37
Total Recoverable Lead	mg/kg dry wt	11.9	25	21	46	37
Total Recoverable Nickel	mg/kg dry wt	3	3	4	11	8
Total Recoverable Zinc	mg/kg dry wt	33	36	55	144	191
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.03	< 0.03	-	-
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Acenaphthene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.038	< 0.034	< 0.039	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.038	< 0.034	< 0.039	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Chrysene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Fluorene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.09	-	-
Perylene	mg/kg dry wt	< 0.016	< 0.015	0.071	-	-
Phenanthrene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-
Pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.017	-	-

Sample Name:		Dup09 10-Nov-2022	TP35 SUR 10-Nov-2022	TP35 1.0m 10-Nov-2022	TP35 2.5m 10-Nov-2022	TP34 SUR 10-Nov-2022
Lab Number:		3113975.11	3113975.12	3113975.13	3113975.14	3113975.15
Individual Tests						
Dry Matter	g/100g as rcvd	-	74	66	53	87
TCLP Weight of Sample Taken	g	-	-	-	50	-
TCLP Initial Sample pH	pH Units	-	-	-	9.1	-
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	2.8	-
TCLP Extractant Type*		-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-
TCLP Extraction Fluid pH	pH Units	-	-	-	4.9	-
TCLP Post Extraction Sample pH	pH Units	-	-	-	6.3	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	8	5	15	36	16
Total Recoverable Boron	mg/kg dry wt	65	50	590	600	98
Total Recoverable Cadmium	mg/kg dry wt	1.16	0.13	1.24	7.5	0.46
Total Recoverable Chromium	mg/kg dry wt	14	9	31	53	19
Total Recoverable Copper	mg/kg dry wt	54	24	290	430	69

Sample Type: Soil						
Sample Name:		Dup09 10-Nov-2022	TP35 SUR 10-Nov-2022	TP35 1.0m 10-Nov-2022	TP35 2.5m 10-Nov-2022	TP34 SUR 10-Nov-2022
Lab Number:		3113975.11	3113975.12	3113975.13	3113975.14	3113975.15
7 Heavy metals plus Boron						
Total Recoverable Lead	mg/kg dry wt	87	29	410	930	940
Total Recoverable Nickel	mg/kg dry wt	13	8	127	91	15
Total Recoverable Zinc	mg/kg dry wt	290	66	1,550	3,800	320
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	0.8	< 0.4	2.8	0.3
1-Methylnaphthalene	mg/kg dry wt	-	< 0.013	< 0.015	< 0.019	< 0.012
2-Methylnaphthalene	mg/kg dry wt	-	< 0.013	< 0.03	< 0.019	< 0.017
Acenaphthylene	mg/kg dry wt	-	< 0.013	< 0.015	< 0.019	< 0.012
Acenaphthene	mg/kg dry wt	-	< 0.013	< 0.015	< 0.019	< 0.012
Anthracene	mg/kg dry wt	-	< 0.013	< 0.015	< 0.019	< 0.012
Benzo[a]anthracene	mg/kg dry wt	-	0.062	< 0.015	0.21	0.021
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	0.076	< 0.015	0.33	0.032
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	0.115	< 0.036	0.48	0.042
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	0.114	< 0.036	0.48	0.042
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	0.089	< 0.015	0.36	0.040
Benzo[e]pyrene	mg/kg dry wt	-	0.040	< 0.015	0.190	0.025
Benzo[g,h,i]perylene	mg/kg dry wt	-	0.046	< 0.015	0.20	0.022
Benzo[k]fluoranthene	mg/kg dry wt	-	0.041	< 0.015	0.158	0.015
Chrysene	mg/kg dry wt	-	0.065	< 0.015	0.22	0.025
Dibenzo[a,h]anthracene	mg/kg dry wt	-	< 0.013	< 0.015	0.050	< 0.012
Fluoranthene	mg/kg dry wt	-	0.140	< 0.015	0.33	0.028
Fluorene	mg/kg dry wt	-	< 0.013	< 0.015	< 0.019	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	0.048	< 0.015	0.21	0.019
Naphthalene	mg/kg dry wt	-	< 0.07	< 0.08	< 0.10	< 0.06
Perylene	mg/kg dry wt	-	0.021	< 0.015	0.083	< 0.012
Phenanthrene	mg/kg dry wt	-	0.041	< 0.015	0.038	0.016
Pyrene	mg/kg dry wt	-	0.122	< 0.015	0.38	0.028

Sample Name:		TP34 0.5m 10-Nov-2022	TP33 SUR 10-Nov-2022	TP33 0.5m 10-Nov-2022	TP32 SUR 10-Nov-2022	TP32 0.5m 10-Nov-2022
Lab Number:		3113975.16	3113975.17	3113975.18	3113975.19	3113975.20
Individual Tests						
Dry Matter	g/100g as rcvd	65	77	75	70	61
TCLP Weight of Sample Taken	g	-	-	-	-	50
TCLP Initial Sample pH	pH Units	-	-	-	-	8.9
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	-	3.6
TCLP Extractant Type*		-	-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05
TCLP Extraction Fluid pH	pH Units	-	-	-	-	4.9
TCLP Post Extraction Sample pH	pH Units	-	-	-	-	6.4
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	3	5	3	5	95
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	240
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.24	< 0.10	0.19	2.3
Total Recoverable Chromium	mg/kg dry wt	8	13	8	16	51
Total Recoverable Copper	mg/kg dry wt	16	28	15	44	300
Total Recoverable Lead	mg/kg dry wt	17.9	68	18.2	25	550
Total Recoverable Nickel	mg/kg dry wt	4	8	4	10	47
Total Recoverable Zinc	mg/kg dry wt	33	164	39	85	2,700
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	0.4	< 0.4	< 0.4	< 0.5
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.019	< 0.02	< 0.014	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017

Sample Type: Soil						
Sample Name:		TP34 0.5m 10-Nov-2022	TP33 SUR 10-Nov-2022	TP33 0.5m 10-Nov-2022	TP32 SUR 10-Nov-2022	TP32 0.5m 10-Nov-2022
Lab Number:		3113975.16	3113975.17	3113975.18	3113975.19	3113975.20
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Acenaphthene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
Anthracene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
Benzo[a]anthracene	mg/kg dry wt	< 0.016	0.027	< 0.014	< 0.014	< 0.017
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.016	0.040	< 0.014	< 0.014	< 0.017
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.037	0.053	< 0.033	< 0.034	< 0.040
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.037	0.053	< 0.033	< 0.034	< 0.040
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.016	0.049	< 0.014	0.015	< 0.017
Benzo[e]pyrene	mg/kg dry wt	< 0.016	0.030	< 0.014	< 0.014	< 0.017
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.016	0.028	< 0.014	< 0.014	< 0.017
Benzo[k]fluoranthene	mg/kg dry wt	< 0.016	0.019	< 0.014	< 0.014	< 0.017
Chrysene	mg/kg dry wt	< 0.016	0.033	< 0.014	< 0.014	< 0.017
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
Fluoranthene	mg/kg dry wt	< 0.016	0.041	< 0.014	0.017	< 0.017
Fluorene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.016	0.025	< 0.014	< 0.014	< 0.017
Naphthalene	mg/kg dry wt	< 0.08	< 0.07	< 0.07	< 0.07	< 0.09
Perylene	mg/kg dry wt	< 0.016	< 0.013	< 0.014	< 0.014	< 0.017
Phenanthrene	mg/kg dry wt	< 0.016	0.017	< 0.014	< 0.014	< 0.017
Pyrene	mg/kg dry wt	< 0.016	0.044	< 0.014	0.015	< 0.017

Sample Name:		TP32 1.5m 10-Nov-2022	TP14 SUR	TP15 SUR	TP15 0.5m	TP15 0.8m
Lab Number:		3113975.21	3113975.22	3113975.23	3113975.24	3113975.25
Individual Tests						
Dry Matter	g/100g as rcvd	67	77	72	72	71
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	2	5	4	3	3
Total Recoverable Boron	mg/kg dry wt	< 20	50	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.14	0.21	0.11	0.11
Total Recoverable Chromium	mg/kg dry wt	7	12	8	9	7
Total Recoverable Copper	mg/kg dry wt	17	24	31	16	15
Total Recoverable Lead	mg/kg dry wt	21	33	26	29	24
Total Recoverable Nickel	mg/kg dry wt	4	9	5	4	3
Total Recoverable Zinc	mg/kg dry wt	43	68	139	83	65
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	7.1	4.7	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.013	< 0.014	< 0.014	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.02	< 0.03	< 0.03	< 0.014
Acenaphthylene	mg/kg dry wt	< 0.015	0.026	0.016	< 0.014	< 0.014
Acenaphthene	mg/kg dry wt	< 0.015	0.035	0.039	< 0.014	< 0.014
Anthracene	mg/kg dry wt	< 0.015	0.113	0.137	< 0.014	< 0.014
Benzo[a]anthracene	mg/kg dry wt	< 0.015	0.51	0.34	< 0.014	< 0.014
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.015	0.76	0.45	< 0.014	< 0.014
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.036	1.11	0.66	< 0.033	< 0.033
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.036	1.11	0.66	< 0.033	< 0.033
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.015	0.83	0.48	< 0.014	< 0.014
Benzo[e]pyrene	mg/kg dry wt	< 0.015	0.45	0.27	< 0.014	< 0.014
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.015	0.55	0.28	< 0.014	< 0.014
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	0.30	0.196	< 0.014	< 0.014
Chrysene	mg/kg dry wt	< 0.015	0.48	0.32	< 0.014	< 0.014
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	0.116	0.072	< 0.014	< 0.014

Sample Type: Soil						
Sample Name:		TP32 1.5m 10-Nov-2022	TP14 SUR	TP15 SUR	TP15 0.5m	TP15 0.8m
Lab Number:		3113975.21	3113975.22	3113975.23	3113975.24	3113975.25
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Fluoranthene	mg/kg dry wt	< 0.015	0.92	0.68	< 0.014	< 0.014
Fluorene	mg/kg dry wt	< 0.015	0.027	0.040	< 0.014	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.015	0.59	0.31	< 0.014	< 0.014
Naphthalene	mg/kg dry wt	< 0.08	< 0.07	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.015	0.22	0.114	< 0.014	< 0.014
Phenanthrene	mg/kg dry wt	< 0.015	0.29	0.38	< 0.014	< 0.014
Pyrene	mg/kg dry wt	< 0.015	0.91	0.57	< 0.014	< 0.014

Sample Name:		TP16 SUR	TP16 0.3m	TP16 0.5m	TP17 SUR	TP17 0.7m
Lab Number:		3113975.26	3113975.27	3113975.28	3113975.29	3113975.30
Individual Tests						
Dry Matter	g/100g as rcvd	85	76	75	80	71
TCLP Weight of Sample Taken	g	-	-	-	-	50
TCLP Initial Sample pH	pH Units	-	-	-	-	7.4
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	-	1.6
TCLP Extractant Type*		-	-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05
TCLP Extraction Fluid pH	pH Units	-	-	-	-	4.9
TCLP Post Extraction Sample pH	pH Units	-	-	-	-	4.9
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	14	6	4	5
Total Recoverable Boron	mg/kg dry wt	< 20	360	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.11	0.32	0.33	< 0.10	0.32
Total Recoverable Chromium	mg/kg dry wt	24	12	10	6	12
Total Recoverable Copper	mg/kg dry wt	21	25	18	13	32
Total Recoverable Lead	mg/kg dry wt	22	200	107	20	250
Total Recoverable Nickel	mg/kg dry wt	14	47	9	5	9
Total Recoverable Zinc	mg/kg dry wt	79	158	127	44	175
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.6	1.0	0.9	1.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.013	< 0.013	< 0.013	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.013	< 0.02	< 0.013	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.013	< 0.013	< 0.013	< 0.014
Acenaphthene	mg/kg dry wt	< 0.012	< 0.013	< 0.013	< 0.013	< 0.014
Anthracene	mg/kg dry wt	< 0.012	< 0.013	0.016	0.019	< 0.014
Benzo[a]anthracene	mg/kg dry wt	0.047	0.070	0.069	0.095	< 0.014
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.055	0.086	0.082	0.142	< 0.014
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.087	0.138	0.127	0.21	< 0.033
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.086	0.136	0.125	0.21	< 0.033
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.065	0.122	0.116	0.162	0.016
Benzo[e]pyrene	mg/kg dry wt	0.029	0.060	0.057	0.084	< 0.014
Benzo[g,h,i]perylene	mg/kg dry wt	0.036	0.068	0.066	0.102	< 0.014
Benzo[k]fluoranthene	mg/kg dry wt	0.030	0.049	0.044	0.069	< 0.014
Chrysene	mg/kg dry wt	0.049	0.081	0.083	0.105	< 0.014
Dibenzo[a,h]anthracene	mg/kg dry wt	0.012	0.018	0.013	0.022	< 0.014
Fluoranthene	mg/kg dry wt	0.108	0.142	0.135	0.20	< 0.014
Fluorene	mg/kg dry wt	< 0.012	< 0.013	< 0.013	< 0.013	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.037	0.072	0.071	0.098	< 0.014
Naphthalene	mg/kg dry wt	< 0.06	< 0.07	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.015	0.020	0.020	0.036	< 0.014
Phenanthrene	mg/kg dry wt	0.022	0.034	0.041	0.067	0.014
Pyrene	mg/kg dry wt	0.091	0.131	0.132	0.179	< 0.014

Sample Type: Soil						
Sample Name:		TP17 3.7m	TP18 SUR	TP18 1.2m	TP19 SUR	TP19 0.8m
Lab Number:		3113975.31	3113975.32	3113975.33	3113975.34	3113975.35
Individual Tests						
Dry Matter	g/100g as rcvd	72	75	71	70	63
TCLP Weight of Sample Taken	g	50	-	-	-	-
TCLP Initial Sample pH	pH Units	8.0	-	-	-	-
TCLP Acid Adjusted Sample pH	pH Units	1.7	-	-	-	-
TCLP Extractant Type*		NaOH/Acetic acid at pH 4.93 +/- 0.05	-	-	-	-
TCLP Extraction Fluid pH	pH Units	4.9	-	-	-	-
TCLP Post Extraction Sample pH	pH Units	5.1	-	-	-	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	34	6	2	6	2
Total Recoverable Boron	mg/kg dry wt	210	84	< 20	60	< 20
Total Recoverable Cadmium	mg/kg dry wt	2.9	0.26	< 0.10	0.34	< 0.10
Total Recoverable Chromium	mg/kg dry wt	27	11	8	12	4
Total Recoverable Copper	mg/kg dry wt	89	32	13	40	10
Total Recoverable Lead	mg/kg dry wt	270	73	21	56	9.7
Total Recoverable Nickel	mg/kg dry wt	31	17	4	16	2
Total Recoverable Zinc	mg/kg dry wt	960	110	31	112	34
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	2.5	< 0.4	< 0.4	4.0	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.013	< 0.014	< 0.014	< 0.016
2-Methylnaphthalene	mg/kg dry wt	< 0.02	< 0.02	< 0.03	< 0.03	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.013	< 0.014	0.017	< 0.016
Acenaphthene	mg/kg dry wt	< 0.014	< 0.013	< 0.014	0.018	< 0.016
Anthracene	mg/kg dry wt	0.014	< 0.013	< 0.014	0.087	< 0.016
Benzo[a]anthracene	mg/kg dry wt	0.24	0.019	< 0.014	0.32	< 0.016
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.32	0.026	< 0.014	0.36	< 0.016
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.46	0.036	< 0.034	0.54	< 0.037
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.46	0.035	< 0.034	0.53	< 0.037
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.35	0.034	< 0.014	0.41	< 0.016
Benzo[e]pyrene	mg/kg dry wt	0.172	0.018	< 0.014	0.21	< 0.016
Benzo[g,h,i]perylene	mg/kg dry wt	0.165	0.017	< 0.014	0.21	< 0.016
Benzo[k]fluoranthene	mg/kg dry wt	0.139	0.015	< 0.014	0.172	< 0.016
Chrysene	mg/kg dry wt	0.21	0.018	< 0.014	0.29	< 0.016
Dibenzo[a,h]anthracene	mg/kg dry wt	0.043	< 0.013	< 0.014	0.050	< 0.016
Fluoranthene	mg/kg dry wt	0.21	0.033	< 0.014	0.65	< 0.016
Fluorene	mg/kg dry wt	< 0.014	< 0.013	< 0.014	0.015	< 0.016
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.184	0.019	< 0.014	0.22	< 0.016
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.08
Perylene	mg/kg dry wt	0.082	< 0.013	< 0.014	0.093	< 0.016
Phenanthrene	mg/kg dry wt	0.021	0.015	< 0.014	0.21	< 0.016
Pyrene	mg/kg dry wt	0.37	0.034	< 0.014	0.60	< 0.016

Sample Name:		TP20 SUR	TP20 1.5m	TP21 SUR	TP21 1.0m	TP22 SUR
Lab Number:		3113975.36	3113975.37	3113975.38	3113975.39	3113975.40
Individual Tests						
Dry Matter	g/100g as rcvd	69	63	76	71	65
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	< 2	3	3	4
Total Recoverable Boron	mg/kg dry wt	26	< 20	< 20	< 20	22
Total Recoverable Cadmium	mg/kg dry wt	0.25	< 0.10	0.11	0.11	0.22
Total Recoverable Chromium	mg/kg dry wt	11	4	7	6	8
Total Recoverable Copper	mg/kg dry wt	31	10	14	10	26
Total Recoverable Lead	mg/kg dry wt	65	10.8	39	24	33
Total Recoverable Nickel	mg/kg dry wt	11	2	5	4	8

Sample Type: Soil						
Sample Name:		TP20 SUR	TP20 1.5m	TP21 SUR	TP21 1.0m	TP22 SUR
Lab Number:		3113975.36	3113975.37	3113975.38	3113975.39	3113975.40
7 Heavy metals plus Boron						
Total Recoverable Zinc	mg/kg dry wt	107	34	55	340	136
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.9	< 0.4	0.7	< 0.4	0.6
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.03	< 0.02	< 0.014	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
Acenaphthene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
Anthracene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
Benzo[a]anthracene	mg/kg dry wt	0.068	< 0.016	0.052	< 0.014	0.048
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.091	< 0.016	0.076	< 0.014	0.066
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.131	< 0.039	0.100	< 0.034	0.085
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.129	< 0.039	0.099	< 0.034	0.084
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.102	< 0.016	0.085	< 0.014	0.068
Benzo[e]pyrene	mg/kg dry wt	0.053	< 0.016	0.044	< 0.014	0.036
Benzo[g,h,i]perylene	mg/kg dry wt	0.057	< 0.016	0.047	< 0.014	0.034
Benzo[k]fluoranthene	mg/kg dry wt	0.042	< 0.016	0.034	< 0.014	0.027
Chrysene	mg/kg dry wt	0.074	< 0.016	0.051	< 0.014	0.048
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
Fluoranthene	mg/kg dry wt	0.115	< 0.016	0.092	< 0.014	0.083
Fluorene	mg/kg dry wt	< 0.015	< 0.016	< 0.013	< 0.014	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.053	< 0.016	0.048	< 0.014	0.034
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.07	< 0.07	< 0.08
Perylene	mg/kg dry wt	0.095	< 0.016	0.021	< 0.014	0.016
Phenanthrene	mg/kg dry wt	0.032	< 0.016	0.023	< 0.014	0.020
Pyrene	mg/kg dry wt	0.127	< 0.016	0.099	< 0.014	0.080

Sample Name:		TP22 1.0m	TP23 SUR	TP23 1.2m	TP24 SUR	TP24 1.5m
Lab Number:		3113975.41	3113975.42	3113975.43	3113975.44	3113975.45
Individual Tests						
Dry Matter	g/100g as rcvd	60	67	63	77	64
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	2	4	3	3	2
Total Recoverable Boron	mg/kg dry wt	< 20	25	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.19	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	4	7	7	7	6
Total Recoverable Copper	mg/kg dry wt	10	18	15	13	12
Total Recoverable Lead	mg/kg dry wt	10.0	26	14.3	21	11.0
Total Recoverable Nickel	mg/kg dry wt	2	14	4	4	3
Total Recoverable Zinc	mg/kg dry wt	36	89	41	74	39
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	0.5	< 0.4	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.019	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
Acenaphthene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
Anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
Benzo[a]anthracene	mg/kg dry wt	< 0.016	0.041	< 0.016	< 0.013	< 0.016
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.016	0.055	< 0.016	< 0.013	< 0.016
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.039	0.072	< 0.039	< 0.031	< 0.038
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.039	0.072	< 0.039	< 0.031	< 0.037
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.016	0.061	< 0.016	< 0.013	< 0.016

Sample Type: Soil						
Sample Name:		TP22 1.0m	TP23 SUR	TP23 1.2m	TP24 SUR	TP24 1.5m
Lab Number:		3113975.41	3113975.42	3113975.43	3113975.44	3113975.45
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Benzo[e]pyrene	mg/kg dry wt	< 0.016	0.033	< 0.016	< 0.013	< 0.016
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.016	0.038	< 0.016	< 0.013	< 0.016
Benzo[k]fluoranthene	mg/kg dry wt	< 0.016	0.025	< 0.016	< 0.013	< 0.016
Chrysene	mg/kg dry wt	< 0.016	0.043	< 0.016	< 0.013	< 0.016
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
Fluoranthene	mg/kg dry wt	< 0.016	0.083	< 0.016	< 0.013	< 0.016
Fluorene	mg/kg dry wt	< 0.016	< 0.015	< 0.016	< 0.013	< 0.016
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.016	0.033	< 0.016	< 0.013	< 0.016
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.07	< 0.08
Perylene	mg/kg dry wt	< 0.016	0.015	< 0.016	< 0.013	< 0.016
Phenanthrene	mg/kg dry wt	< 0.016	0.032	< 0.016	< 0.013	< 0.016
Pyrene	mg/kg dry wt	< 0.016	0.082	< 0.016	< 0.013	< 0.016

Sample Name:		TP25 SUR	TP25 2.0m	TP26 SUR	TP26 0.8m	TP26 1.5m
Lab Number:		3113975.46	3113975.47	3113975.48	3113975.49	3113975.50
Individual Tests						
Dry Matter	g/100g as rcvd	87	67	83	77	77
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	3	2	3	2	< 2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.14	< 0.10	0.11	0.22	< 0.10
Total Recoverable Chromium	mg/kg dry wt	24	7	18	9	5
Total Recoverable Copper	mg/kg dry wt	18	13	17	14	13
Total Recoverable Lead	mg/kg dry wt	17.8	17.9	19.1	21	13.9
Total Recoverable Nickel	mg/kg dry wt	12	4	10	5	3
Total Recoverable Zinc	mg/kg dry wt	79	27	61	91	47
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	< 0.4	< 0.3	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.017	< 0.03	< 0.012	< 0.013	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Acenaphthene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Anthracene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[a]anthracene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.028	< 0.035	< 0.029	< 0.032	< 0.032
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.028	< 0.035	< 0.029	< 0.032	< 0.031
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[e]pyrene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Chrysene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Fluoranthene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Fluorene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Naphthalene	mg/kg dry wt	< 0.06	< 0.08	< 0.06	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Phenanthrene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013
Pyrene	mg/kg dry wt	< 0.012	< 0.015	< 0.012	< 0.013	< 0.013

Sample Type: Soil						
Sample Name:		TP27 SUR	TP27 1.0m	TP27 1.7m	TP28 SUR	TP28 0.5m
Lab Number:		3113975.51	3113975.52	3113975.53	3113975.54	3113975.55
Individual Tests						
Dry Matter	g/100g as rcvd	77	81	72	83	57
TCLP Weight of Sample Taken	g	-	50	-	-	-
TCLP Initial Sample pH	pH Units	-	9.3	-	-	-
TCLP Acid Adjusted Sample pH	pH Units	-	1.8	-	-	-
TCLP Extractant Type*		-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-	-	-
TCLP Extraction Fluid pH	pH Units	-	4.9	-	-	-
TCLP Post Extraction Sample pH	pH Units	-	5.4	-	-	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	5	2	3	2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.26	0.24	< 0.10	0.12	< 0.10
Total Recoverable Chromium	mg/kg dry wt	13	13	8	17	6
Total Recoverable Copper	mg/kg dry wt	34	29	12	17	13
Total Recoverable Lead	mg/kg dry wt	48	220	25	22	14.7
Total Recoverable Nickel	mg/kg dry wt	10	6	4	9	4
Total Recoverable Zinc	mg/kg dry wt	118	139	34	68	36
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	2.0	8.8	< 0.4	< 0.3	< 0.5
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.012	< 0.014	< 0.012	< 0.018
2-Methylnaphthalene	mg/kg dry wt	< 0.02	< 0.018	< 0.03	< 0.018	< 0.018
Acenaphthylene	mg/kg dry wt	0.018	0.026	< 0.014	< 0.012	< 0.018
Acenaphthene	mg/kg dry wt	< 0.014	< 0.012	< 0.014	< 0.012	< 0.018
Anthracene	mg/kg dry wt	0.018	0.092	< 0.014	< 0.012	< 0.018
Benzo[a]anthracene	mg/kg dry wt	0.160	0.78	< 0.014	< 0.012	< 0.018
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.22	0.83	< 0.014	< 0.012	< 0.018
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.32	1.24	< 0.033	< 0.030	< 0.043
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.32	1.23	< 0.033	< 0.029	< 0.043
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.25	0.98	< 0.014	< 0.012	< 0.018
Benzo[e]pyrene	mg/kg dry wt	0.129	0.50	< 0.014	< 0.012	< 0.018
Benzo[g,h,i]perylene	mg/kg dry wt	0.144	0.52	< 0.014	< 0.012	< 0.018
Benzo[k]fluoranthene	mg/kg dry wt	0.095	0.38	< 0.014	< 0.012	< 0.018
Chrysene	mg/kg dry wt	0.152	0.71	< 0.014	< 0.012	< 0.018
Dibenzo[a,h]anthracene	mg/kg dry wt	0.031	0.123	< 0.014	< 0.012	< 0.018
Fluoranthene	mg/kg dry wt	0.28	1.43	< 0.014	< 0.012	< 0.018
Fluorene	mg/kg dry wt	< 0.014	< 0.012	< 0.014	< 0.012	< 0.018
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.150	0.55	< 0.014	< 0.012	< 0.018
Naphthalene	mg/kg dry wt	< 0.07	< 0.06	< 0.07	< 0.06	< 0.09
Perylene	mg/kg dry wt	0.058	0.21	< 0.014	< 0.012	< 0.018
Phenanthrene	mg/kg dry wt	0.049	0.34	< 0.014	< 0.012	< 0.018
Pyrene	mg/kg dry wt	0.29	1.32	< 0.014	< 0.012	< 0.018

Sample Name:		TP29 SUR	TP29 0.3m	TP30 SUR	TP30 1.5m	TP30 3.5m
Lab Number:		3113975.56	3113975.57	3113975.58	3113975.59	3113975.60
Individual Tests						
Dry Matter	g/100g as rcvd	74	71	78	77	72
TCLP Weight of Sample Taken	g	-	-	-	50	50
TCLP Initial Sample pH	pH Units	-	-	-	9.1	7.2
TCLP Acid Adjusted Sample pH	pH Units	-	-	-	1.7	1.6
TCLP Extractant Type*		-	-	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	NaOH/Acetic acid at pH 4.93 +/- 0.05
TCLP Extraction Fluid pH	pH Units	-	-	-	4.9	4.9
TCLP Post Extraction Sample pH	pH Units	-	-	-	5.1	4.9

Sample Type: Soil						
Sample Name:		TP29 SUR	TP29 0.3m	TP30 SUR	TP30 1.5m	TP30 3.5m
Lab Number:		3113975.56	3113975.57	3113975.58	3113975.59	3113975.60
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	3	< 2	4	6	4
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	0.27	0.32	0.13
Total Recoverable Chromium	mg/kg dry wt	9	7	18	15	15
Total Recoverable Copper	mg/kg dry wt	15	11	23	37	28
Total Recoverable Lead	mg/kg dry wt	19.1	15.7	32	470	83
Total Recoverable Nickel	mg/kg dry wt	4	4	10	8	8
Total Recoverable Zinc	mg/kg dry wt	52	41	95	250	160
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.7	< 0.4	0.8	2.3	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	< 0.013	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.03	< 0.013	0.015	< 0.014
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	0.028	< 0.014
Acenaphthene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	0.015	< 0.014
Anthracene	mg/kg dry wt	< 0.014	< 0.014	0.017	0.055	< 0.014
Benzo[a]anthracene	mg/kg dry wt	0.047	< 0.014	0.050	0.127	< 0.014
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.075	< 0.014	0.058	0.176	< 0.014
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.115	< 0.033	0.091	0.25	< 0.034
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.114	< 0.033	0.090	0.25	< 0.034
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.087	< 0.014	0.072	0.183	< 0.014
Benzo[e]pyrene	mg/kg dry wt	0.042	< 0.014	0.033	0.104	< 0.014
Benzo[g,h,i]perylene	mg/kg dry wt	0.059	< 0.014	0.041	0.141	< 0.014
Benzo[k]fluoranthene	mg/kg dry wt	0.036	< 0.014	0.032	0.077	< 0.014
Chrysene	mg/kg dry wt	0.048	< 0.014	0.061	0.145	< 0.014
Dibenzo[a,h]anthracene	mg/kg dry wt	0.016	< 0.014	< 0.013	0.024	< 0.014
Fluoranthene	mg/kg dry wt	0.088	< 0.014	0.147	0.34	< 0.014
Fluorene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	0.016	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.059	< 0.014	0.040	0.118	< 0.014
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.020	< 0.014	0.015	0.045	< 0.014
Phenanthrene	mg/kg dry wt	0.021	< 0.014	0.098	0.28	< 0.014
Pyrene	mg/kg dry wt	0.082	< 0.014	0.119	0.32	< 0.014

Sample Name:		TP31 SUR	TP31 1.0m	DUP01	DUP02	DUP03
Lab Number:		3113975.61	3113975.62	3113975.63	3113975.64	3113975.65
Individual Tests						
Dry Matter	g/100g as rcvd	74	66	-	-	-
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	2	3	3	3
Total Recoverable Boron	mg/kg dry wt	35	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.22	< 0.10	0.11	< 0.10	0.15
Total Recoverable Chromium	mg/kg dry wt	11	6	7	7	23
Total Recoverable Copper	mg/kg dry wt	25	10	15	13	17
Total Recoverable Lead	mg/kg dry wt	25	15.5	41	12.3	17.9
Total Recoverable Nickel	mg/kg dry wt	8	3	5	3	12
Total Recoverable Zinc	mg/kg dry wt	85	32	57	38	77
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.4	< 0.4	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.03	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Acenaphthene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Anthracene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Benzo[a]anthracene	mg/kg dry wt	0.032	< 0.015	-	-	-

Sample Type: Soil						
Sample Name:		TP31 SUR	TP31 1.0m	DUP01	DUP02	DUP03
Lab Number:		3113975.61	3113975.62	3113975.63	3113975.64	3113975.65
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.043	< 0.015	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.066	< 0.036	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.065	< 0.036	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.048	< 0.015	-	-	-
Benzo[e]pyrene	mg/kg dry wt	0.021	< 0.015	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	0.029	< 0.015	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	0.024	< 0.015	-	-	-
Chrysene	mg/kg dry wt	0.034	< 0.015	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Fluoranthene	mg/kg dry wt	0.071	< 0.015	-	-	-
Fluorene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.031	< 0.015	-	-	-
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	-	-	-
Perylene	mg/kg dry wt	< 0.013	< 0.015	-	-	-
Phenanthrene	mg/kg dry wt	0.019	< 0.015	-	-	-
Pyrene	mg/kg dry wt	0.061	< 0.015	-	-	-

Sample Name:		DUP04	DUP05	DUP06	TP14 0.8m	TP14 1.2m
Lab Number:		3113975.66	3113975.67	3113975.68	3113975.69	3113975.70
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	74	69
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	7	3	< 2	5	2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	154	28
Total Recoverable Cadmium	mg/kg dry wt	0.20	< 0.10	< 0.10	0.26	< 0.10
Total Recoverable Chromium	mg/kg dry wt	11	9	6	9	8
Total Recoverable Copper	mg/kg dry wt	26	14	11	27	15
Total Recoverable Lead	mg/kg dry wt	270	18.0	15.2	138	20
Total Recoverable Nickel	mg/kg dry wt	6	4	3	6	5
Total Recoverable Zinc	mg/kg dry wt	134	48	34	98	31
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	-	-	0.7	< 0.4
1-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.014	< 0.015
2-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.014	< 0.03
Acenaphthylene	mg/kg dry wt	-	-	-	< 0.014	< 0.015
Acenaphthene	mg/kg dry wt	-	-	-	< 0.014	< 0.015
Anthracene	mg/kg dry wt	-	-	-	< 0.014	< 0.015
Benzo[a]anthracene	mg/kg dry wt	-	-	-	0.053	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	-	-	0.081	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	-	-	0.120	< 0.035
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	-	-	0.119	< 0.035
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	-	-	0.091	< 0.015
Benzo[e]pyrene	mg/kg dry wt	-	-	-	0.043	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	-	-	-	0.056	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	-	-	-	0.040	< 0.015
Chrysene	mg/kg dry wt	-	-	-	0.052	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	-	-	-	0.014	< 0.015
Fluoranthene	mg/kg dry wt	-	-	-	0.089	< 0.015
Fluorene	mg/kg dry wt	-	-	-	< 0.014	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	-	-	0.054	< 0.015
Naphthalene	mg/kg dry wt	-	-	-	< 0.07	< 0.08
Perylene	mg/kg dry wt	-	-	-	0.021	< 0.015

Sample Type: Soil						
Sample Name:		DUP04	DUP05	DUP06	TP14 0.8m	TP14 1.2m
Lab Number:		3113975.66	3113975.67	3113975.68	3113975.69	3113975.70
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Phenanthrene	mg/kg dry wt	-	-	-	0.016	< 0.015
Pyrene	mg/kg dry wt	-	-	-	0.091	< 0.015

Sample Type: Aqueous						
Sample Name:		TP17 0.7m [TCLP Extract]	TP17 3.7m [TCLP Extract]	TP27 1.0m [TCLP Extract]	TP30 1.5m [TCLP Extract]	TP30 3.5m [TCLP Extract]
Lab Number:		3113975.71	3113975.72	3113975.73	3113975.74	3113975.75
Individual Tests						
Total Lead	g/m³	0.080	0.031	0.042	0.122	0.0049
Total Zinc	g/m³	-	2.6	-	-	-

Sample Name:		TP35 2.5m [TCLP Extract]	TP32 0.5m [TCLP Extract]
Lab Number:		3113975.76	3113975.77
Individual Tests			
Total Boron	g/m³	1.65	-
Total Copper	g/m³	0.014	< 0.011
Total Lead	g/m³	0.032	0.0025
Total Zinc	g/m³	2.1	3.9

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3113975-SPv1' issued on 17-Nov-2022 at 7:50 am.
Reason for amendment: At the client's request, TCLPs have been added.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-70
Total of Reported PAHs in Soil	Sonication extraction, GC-MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1-8, 12-62, 69-70
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-8, 12-62, 69-70
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1-8, 12-62, 69-70
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1-8, 12-62, 69-70
7 Heavy metals plus Boron	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 20 mg/kg dry wt	1-70
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1-8, 12-62, 69-70
TCLP Profile*	Extraction at 30 +/- 2 rpm for 18 +/- 2 hours, (Ratio 1g sample : 20g extraction fluid). US EPA 1311.	-	14, 20, 30-31, 52, 59-60
TCLP Profile			

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
TCLP Weight of Sample Taken	Gravimetric. US EPA 1311.	0.1 g	14, 20, 30-31, 52, 59-60
TCLP Initial Sample pH	pH meter. US EPA 1311.	0.1 pH Units	14, 20, 30-31, 52, 59-60
TCLP Acid Adjusted Sample pH	pH meter. US EPA 1311.	0.1 pH Units	14, 20, 30-31, 52, 59-60
TCLP Extractant Type*	US EPA 1311.	-	14, 20, 30-31, 52, 59-60
TCLP Extraction Fluid pH	pH meter. US EPA 1311.	0.1 pH Units	14, 20, 30-31, 52, 59-60
TCLP Post Extraction Sample pH	pH meter. US EPA 1311.	0.1 pH Units	14, 20, 30-31, 52, 59-60

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Total Digestion of Extracted Samples*	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	71-77
Total Boron	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.11 g/m^3	76
Total Copper	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.011 g/m^3	76-77
Total Lead	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.0021 g/m^3	71-77
Total Zinc	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	72, 76-77

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 14-Nov-2022 and 23-Feb-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

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Certificate of Analysis

Client:	Fraser Thomas Limited	**Lab No:**	3257173 SPv1
Contact:	Elliot Bish	**Date Received:**	27-Apr-2023
	C/- Fraser Thomas Limited	**Date Reported:**	02-May-2023
	PO Box 204006	**Quote No:**	92882
	Highbrook	**Order No:**	PO000883
	Auckland 2161	**Client Reference:**	33097
		Submitted By:	Ben Laing-McConnell

Sample Type: Soil

Sample Name:		HA1 0.2-0.6m 20-Apr-2023	Dup01 20-Apr-2023	Dup02 20-Apr-2023	TP37 0.2m 20-Apr-2023	TP38 0.1m 20-Apr-2023
Lab Number:		3257173.1	3257173.2	3257173.3	3257173.4	3257173.5
Individual Tests						
Dry Matter	g/100g as rcvd	73	-	-	72	75
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	5	6	7	5
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	28
Total Recoverable Cadmium	mg/kg dry wt	0.19	0.56	< 0.10	0.27	0.18
Total Recoverable Chromium	mg/kg dry wt	14	12	13	14	9
Total Recoverable Copper	mg/kg dry wt	48	48	28	44	26
Total Recoverable Lead	mg/kg dry wt	96	27	18.5	47	37
Total Recoverable Nickel	mg/kg dry wt	8	5	7	23	8
Total Recoverable Zinc	mg/kg dry wt	116	101	45	110	270
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	4.0	-	-	2.1	1.7
1-Methylnaphthalene	mg/kg dry wt	< 0.014	-	-	< 0.014	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.014	-	-	< 0.014	< 0.014
Acenaphthylene	mg/kg dry wt	0.016	-	-	< 0.014	< 0.014
Acenaphthene	mg/kg dry wt	< 0.014	-	-	< 0.014	< 0.014
Anthracene	mg/kg dry wt	0.036	-	-	0.021	0.016
Benzo[a]anthracene	mg/kg dry wt	0.26	-	-	0.186	0.123
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.44	-	-	0.21	0.179
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.67	-	-	0.31	0.26
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.66	-	-	0.31	0.26
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.53	-	-	0.25	0.21
Benzo[e]pyrene	mg/kg dry wt	0.29	-	-	0.126	0.103
Benzo[g,h,i]perylene	mg/kg dry wt	0.35	-	-	0.123	0.111
Benzo[k]fluoranthene	mg/kg dry wt	0.193	-	-	0.097	0.072
Chrysene	mg/kg dry wt	0.29	-	-	0.183	0.121
Dibenzo[a,h]anthracene	mg/kg dry wt	0.082	-	-	0.033	0.027
Fluoranthene	mg/kg dry wt	0.46	-	-	0.32	0.25
Fluorene	mg/kg dry wt	< 0.014	-	-	< 0.014	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.38	-	-	0.124	0.111
Naphthalene	mg/kg dry wt	< 0.07	-	-	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.117	-	-	0.044	0.043
Phenanthrene	mg/kg dry wt	0.096	-	-	0.056	0.041
Pyrene	mg/kg dry wt	0.44	-	-	0.31	0.26

Sample Type: Soil						
Sample Name:		TP38 0.3m 20-Apr-2023	TP38 2.0m 20-Apr-2023	TP39 0.2m 20-Apr-2023	TP39 0.5m 20-Apr-2023	TP40 0.6m 20-Apr-2023
Lab Number:		3257173.6	3257173.7	3257173.8	3257173.9	3257173.10
Individual Tests						
Dry Matter	g/100g as rcvd	77	73	72	78	76
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	72	8	5	3
Total Recoverable Boron	mg/kg dry wt	97	510	41	20	47
Total Recoverable Cadmium	mg/kg dry wt	0.15	3.2	0.50	0.17	< 0.10
Total Recoverable Chromium	mg/kg dry wt	10	38	13	11	10
Total Recoverable Copper	mg/kg dry wt	24	410	40	31	16
Total Recoverable Lead	mg/kg dry wt	34	360	79	76	17.4
Total Recoverable Nickel	mg/kg dry wt	8	54	12	10	8
Total Recoverable Zinc	mg/kg dry wt	85	1,640	191	105	46
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	1.4	0.7	14.6	2.4	0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	< 0.014	< 0.013	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	< 0.014	< 0.013	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.014	0.018	< 0.013	< 0.013
Acenaphthene	mg/kg dry wt	< 0.013	< 0.014	0.129	0.019	< 0.013
Anthracene	mg/kg dry wt	0.016	< 0.014	0.43	0.051	< 0.013
Benzo[a]anthracene	mg/kg dry wt	0.091	0.046	1.00	0.168	0.026
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.143	0.058	1.27	0.22	0.033
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.21	0.086	1.83	0.32	0.049
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.21	0.085	1.81	0.32	0.048
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.160	0.074	1.26	0.25	0.037
Benzo[e]pyrene	mg/kg dry wt	0.081	0.037	0.72	0.135	0.021
Benzo[g,h,i]perylene	mg/kg dry wt	0.099	0.035	0.77	0.141	0.023
Benzo[k]fluoranthene	mg/kg dry wt	0.064	0.026	0.46	0.078	0.016
Chrysene	mg/kg dry wt	0.102	0.049	0.98	0.164	0.027
Dibenzo[a,h]anthracene	mg/kg dry wt	0.023	< 0.014	0.179	0.029	< 0.013
Fluoranthene	mg/kg dry wt	0.194	0.111	2.6	0.37	0.063
Fluorene	mg/kg dry wt	< 0.013	< 0.014	0.087	0.014	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.104	0.036	0.75	0.146	0.021
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	0.040	0.014	0.28	0.050	< 0.013
Phenanthrene	mg/kg dry wt	0.045	0.046	1.28	0.180	0.030
Pyrene	mg/kg dry wt	0.21	0.097	2.5	0.37	0.068

Sample Name:		TP40 1.0m 20-Apr-2023	TP40 2.1m 20-Apr-2023	TP41 cap 0.2m 20-Apr-2023	TP42 cap 0.2m 20-Apr-2023	TP42 cap 1.0m 20-Apr-2023
Lab Number:		3257173.11	3257173.12	3257173.13	3257173.14	3257173.15
Individual Tests						
Dry Matter	g/100g as rcvd	78	69	86	87	72
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	7	2	3	3	3
Total Recoverable Boron	mg/kg dry wt	950	102	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.60	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	29	7	23	26	8
Total Recoverable Copper	mg/kg dry wt	41	17	18	19	16
Total Recoverable Lead	mg/kg dry wt	126	16.4	15.0	15.7	18.2
Total Recoverable Nickel	mg/kg dry wt	49	4	12	13	4
Total Recoverable Zinc	mg/kg dry wt	590	39	65	69	33
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.5	< 0.4	1.2	< 0.3	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.014

Sample Type: Soil						
Sample Name:		TP40 1.0m 20-Apr-2023	TP40 2.1m 20-Apr-2023	TP41 cap 0.2m 20-Apr-2023	TP42 cap 0.2m 20-Apr-2023	TP42 cap 1.0m 20-Apr-2023
Lab Number:		3257173.11	3257173.12	3257173.13	3257173.14	3257173.15
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.015	0.015	< 0.012	< 0.014
Acenaphthene	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.014
Anthracene	mg/kg dry wt	< 0.013	< 0.015	0.027	< 0.012	< 0.014
Benzo[a]anthracene	mg/kg dry wt	0.036	< 0.015	0.062	< 0.012	< 0.014
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.045	< 0.015	0.115	< 0.012	< 0.014
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.065	< 0.035	0.196	< 0.028	< 0.033
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.064	< 0.035	0.195	< 0.027	< 0.033
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.051	< 0.015	0.141	< 0.012	< 0.014
Benzo[e]pyrene	mg/kg dry wt	0.026	< 0.015	0.109	< 0.012	< 0.014
Benzo[g,h,i]perylene	mg/kg dry wt	0.027	< 0.015	0.169	< 0.012	< 0.014
Benzo[k]fluoranthene	mg/kg dry wt	0.021	< 0.015	0.043	< 0.012	< 0.014
Chrysene	mg/kg dry wt	0.035	< 0.015	0.060	< 0.012	< 0.014
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.015	0.037	< 0.012	< 0.014
Fluoranthene	mg/kg dry wt	0.070	< 0.015	0.113	< 0.012	< 0.014
Fluorene	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.027	< 0.015	0.176	< 0.012	< 0.014
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	< 0.06	< 0.06	< 0.07
Perylene	mg/kg dry wt	0.018	< 0.015	0.032	< 0.012	< 0.014
Phenanthrene	mg/kg dry wt	0.016	< 0.015	0.038	< 0.012	< 0.014
Pyrene	mg/kg dry wt	0.069	< 0.015	0.098	< 0.012	< 0.014

Sample Name:		TP43 cap 0.3m 20-Apr-2023	TP43 cap 0.7m 20-Apr-2023	TP44 cap 0.4m 20-Apr-2023	TP44 IF 1.0m 20-Apr-2023	TP45 0.2m 20-Apr-2023
Lab Number:		3257173.16	3257173.17	3257173.18	3257173.19	3257173.20
Individual Tests						
Dry Matter	g/100g as rcvd	82	71	86	74	87
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	4	5	3	3	2
Total Recoverable Boron	mg/kg dry wt	< 20	159	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.23	< 0.10	0.14	< 0.10
Total Recoverable Chromium	mg/kg dry wt	18	12	26	7	26
Total Recoverable Copper	mg/kg dry wt	25	22	17	20	17
Total Recoverable Lead	mg/kg dry wt	26	23	16.4	14.7	16.1
Total Recoverable Nickel	mg/kg dry wt	12	16	13	3	13
Total Recoverable Zinc	mg/kg dry wt	76	75	65	56	70
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.7	< 0.4	< 0.3	< 0.4	< 0.3
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Acenaphthene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Anthracene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Benzo[a]anthracene	mg/kg dry wt	0.049	< 0.014	< 0.012	< 0.013	< 0.012
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.063	< 0.014	0.013	< 0.013	< 0.012
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.095	< 0.034	< 0.029	< 0.032	< 0.028
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.094	< 0.034	< 0.029	< 0.032	< 0.028
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.076	< 0.014	0.018	< 0.013	< 0.012
Benzo[e]pyrene	mg/kg dry wt	0.038	< 0.014	< 0.012	< 0.013	< 0.012
Benzo[g,h,i]perylene	mg/kg dry wt	0.039	< 0.014	< 0.012	< 0.013	< 0.012
Benzo[k]fluoranthene	mg/kg dry wt	0.033	< 0.014	< 0.012	< 0.013	< 0.012
Chrysene	mg/kg dry wt	0.050	< 0.014	0.012	< 0.013	< 0.012

Sample Type: Soil						
Sample Name:		TP43 cap 0.3m 20-Apr-2023	TP43 cap 0.7m 20-Apr-2023	TP44 cap 0.4m 20-Apr-2023	TP44 IF 1.0m 20-Apr-2023	TP45 0.2m 20-Apr-2023
Lab Number:		3257173.16	3257173.17	3257173.18	3257173.19	3257173.20
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Fluoranthene	mg/kg dry wt	0.114	< 0.014	0.019	< 0.013	< 0.012
Fluorene	mg/kg dry wt	< 0.012	< 0.014	< 0.012	< 0.013	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.043	< 0.014	< 0.012	< 0.013	< 0.012
Naphthalene	mg/kg dry wt	< 0.06	< 0.07	< 0.06	< 0.07	< 0.06
Perylene	mg/kg dry wt	0.014	< 0.014	< 0.012	< 0.013	< 0.012
Phenanthrene	mg/kg dry wt	0.030	< 0.014	< 0.012	< 0.013	< 0.012
Pyrene	mg/kg dry wt	0.105	< 0.014	0.019	< 0.013	< 0.012

Sample Name:		TP46 0.1m 20-Apr-2023	TP46 0.3m 20-Apr-2023	TP47 0.1m 20-Apr-2023	TP48 0.1m 20-Apr-2023	TP49 0.1m 20-Apr-2023
Lab Number:		3257173.21	3257173.22	3257173.23	3257173.24	3257173.25
Individual Tests						
Dry Matter	g/100g as rcvd	66	65	60	66	69
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	6	5	6	5	4
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.24	0.36	0.54	0.44	0.35
Total Recoverable Chromium	mg/kg dry wt	17	14	12	9	9
Total Recoverable Copper	mg/kg dry wt	47	47	47	37	31
Total Recoverable Lead	mg/kg dry wt	21	19.6	26	25	21
Total Recoverable Nickel	mg/kg dry wt	8	7	6	5	5
Total Recoverable Zinc	mg/kg dry wt	72	87	104	122	113
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Acenaphthene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Anthracene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.016	< 0.016	< 0.017	0.017	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.037	< 0.038	< 0.040	< 0.036	< 0.035
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.037	< 0.038	< 0.040	< 0.036	< 0.035
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	0.020	0.017
Benzo[e]pyrene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Chrysene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Fluoranthene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	0.023	0.016
Fluorene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.08
Perylene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Phenanthrene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	< 0.015	< 0.015
Pyrene	mg/kg dry wt	< 0.016	< 0.016	< 0.017	0.023	0.018

Sample Name:		TP50 0.1m 20-Apr-2023	TP50 0.3m 20-Apr-2023	TP50 0.5m 20-Apr-2023	TP51 0.1m 20-Apr-2023	TP51 0.25m 20-Apr-2023
Lab Number:		3257173.26	3257173.27	3257173.28	3257173.29	3257173.30
Individual Tests						
Dry Matter	g/100g as rcvd	77	69	76	74	62

Sample Type: Soil						
Sample Name:		TP50 0.1m 20-Apr-2023	TP50 0.3m 20-Apr-2023	TP50 0.5m 20-Apr-2023	TP51 0.1m 20-Apr-2023	TP51 0.25m 20-Apr-2023
Lab Number:		3257173.26	3257173.27	3257173.28	3257173.29	3257173.30
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	5	5	6	5
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	30	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.14	0.14	0.18	0.23	0.51
Total Recoverable Chromium	mg/kg dry wt	12	15	13	15	10
Total Recoverable Copper	mg/kg dry wt	33	35	36	57	49
Total Recoverable Lead	mg/kg dry wt	34	34	57	47	20
Total Recoverable Nickel	mg/kg dry wt	8	8	13	9	5
Total Recoverable Zinc	mg/kg dry wt	55	78	83	92	115
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	3.1	2.3	3.8	1.9	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	< 0.014	< 0.016
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	< 0.014	< 0.016
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.014	0.017	< 0.014	< 0.016
Acenaphthene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	< 0.014	< 0.016
Anthracene	mg/kg dry wt	0.028	0.037	0.042	0.019	< 0.016
Benzo[a]anthracene	mg/kg dry wt	0.26	0.172	0.27	0.140	< 0.016
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.32	0.22	0.40	0.20	< 0.016
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.48	0.33	0.58	0.29	< 0.038
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.48	0.33	0.57	0.29	< 0.038
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.39	0.23	0.42	0.23	< 0.016
Benzo[e]pyrene	mg/kg dry wt	0.194	0.138	0.25	0.131	< 0.016
Benzo[g,h,i]perylene	mg/kg dry wt	0.189	0.170	0.28	0.150	< 0.016
Benzo[k]fluoranthene	mg/kg dry wt	0.157	0.103	0.165	0.083	< 0.016
Chrysene	mg/kg dry wt	0.25	0.161	0.26	0.138	< 0.016
Dibenzo[a,h]anthracene	mg/kg dry wt	0.051	0.035	0.061	0.031	< 0.016
Fluoranthene	mg/kg dry wt	0.48	0.36	0.54	0.27	< 0.016
Fluorene	mg/kg dry wt	< 0.014	< 0.014	< 0.013	< 0.014	< 0.016
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.21	0.168	0.28	0.148	< 0.016
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.08
Perylene	mg/kg dry wt	0.076	0.053	0.093	0.048	< 0.016
Phenanthrene	mg/kg dry wt	0.076	0.115	0.124	0.061	< 0.016
Pyrene	mg/kg dry wt	0.44	0.36	0.58	0.28	< 0.016

Sample Name:		TP52 0.1m 20-Apr-2023	TP54 0.1m 20-Apr-2023	TP55 0.1m 20-Apr-2023	TP56 0.1m 20-Apr-2023	TP56 2.3m 20-Apr-2023
Lab Number:		3257173.31	3257173.32	3257173.33	3257173.34	3257173.35
Individual Tests						
Dry Matter	g/100g as rcvd	76	77	94	67	56
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	5	6	7	8	6
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.10	0.23	< 0.10	0.40	0.57
Total Recoverable Chromium	mg/kg dry wt	13	13	17	13	11
Total Recoverable Copper	mg/kg dry wt	30	39	37	42	46
Total Recoverable Lead	mg/kg dry wt	21	76	28	27	24
Total Recoverable Nickel	mg/kg dry wt	9	8	10	6	6
Total Recoverable Zinc	mg/kg dry wt	47	112	70	97	155
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	0.6	< 0.4	< 0.3	< 0.4	< 0.5
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
Acenaphthene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018

Sample Type: Soil						
Sample Name:		TP52 0.1m 20-Apr-2023	TP54 0.1m 20-Apr-2023	TP55 0.1m 20-Apr-2023	TP56 0.1m 20-Apr-2023	TP56 2.3m 20-Apr-2023
Lab Number:		3257173.31	3257173.32	3257173.33	3257173.34	3257173.35
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Anthracene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
Benzo[a]anthracene	mg/kg dry wt	0.050	0.013	< 0.011	0.018	< 0.018
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.060	0.016	< 0.011	0.020	< 0.018
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.090	< 0.031	< 0.025	< 0.035	< 0.043
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.089	< 0.031	< 0.025	< 0.035	< 0.043
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.071	0.025	< 0.011	0.028	< 0.018
Benzo[e]pyrene	mg/kg dry wt	0.036	0.015	< 0.011	< 0.015	< 0.018
Benzo[g,h,i]perylene	mg/kg dry wt	0.040	0.014	< 0.011	0.016	< 0.018
Benzo[k]fluoranthene	mg/kg dry wt	0.027	< 0.013	< 0.011	< 0.015	< 0.018
Chrysene	mg/kg dry wt	0.049	0.014	< 0.011	0.018	< 0.018
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
Fluoranthene	mg/kg dry wt	0.107	0.017	< 0.011	0.040	< 0.018
Fluorene	mg/kg dry wt	< 0.013	< 0.013	< 0.011	< 0.015	< 0.018
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.042	0.014	< 0.011	0.015	< 0.018
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.06	< 0.08	< 0.09
Perylene	mg/kg dry wt	0.015	< 0.013	< 0.011	< 0.015	< 0.018
Phenanthrene	mg/kg dry wt	0.024	< 0.013	< 0.011	0.017	< 0.018
Pyrene	mg/kg dry wt	0.097	0.017	< 0.011	0.040	< 0.018

Sample Name:		TP57 0.8m 20-Apr-2023	TP57 1.5m 20-Apr-2023
Lab Number:		3257173.36	3257173.37
Individual Tests			
Dry Matter	g/100g as rcvd	72	70
7 Heavy metals plus Boron			
Total Recoverable Arsenic	mg/kg dry wt	6	5
Total Recoverable Boron	mg/kg dry wt	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.23	0.13
Total Recoverable Chromium	mg/kg dry wt	18	14
Total Recoverable Copper	mg/kg dry wt	141	40
Total Recoverable Lead	mg/kg dry wt	66	47
Total Recoverable Nickel	mg/kg dry wt	8	6
Total Recoverable Zinc	mg/kg dry wt	86	74
Polycyclic Aromatic Hydrocarbons Screening in Soil*			
Total of Reported PAHs in Soil	mg/kg dry wt	1.3	6.8
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.015
Acenaphthene	mg/kg dry wt	< 0.014	< 0.015
Anthracene	mg/kg dry wt	0.018	0.077
Benzo[a]anthracene	mg/kg dry wt	0.097	0.61
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.127	0.65
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.193	0.98
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.191	0.96
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.166	0.78
Benzo[e]pyrene	mg/kg dry wt	0.087	0.37
Benzo[g,h,i]perylene	mg/kg dry wt	0.089	0.35
Benzo[k]fluoranthene	mg/kg dry wt	0.061	0.31
Chrysene	mg/kg dry wt	0.098	0.59
Dibenzo[a,h]anthracene	mg/kg dry wt	0.021	0.099
Fluoranthene	mg/kg dry wt	0.194	1.21
Fluorene	mg/kg dry wt	< 0.014	< 0.015

Sample Type: Soil			
	Sample Name:	TP57 0.8m 20-Apr-2023	TP57 1.5m 20-Apr-2023
	Lab Number:	3257173.36	3257173.37
Polycyclic Aromatic Hydrocarbons Screening in Soil*			
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.093	0.39
Naphthalene	mg/kg dry wt	< 0.07	< 0.08
Perylene	mg/kg dry wt	0.028	0.156
Phenanthrene	mg/kg dry wt	0.055	0.168
Pyrene	mg/kg dry wt	0.190	1.00

Summary of Methods

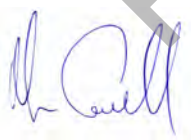
The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-37
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1, 4-37
7 Heavy metals plus Boron	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 20 mg/kg dry wt	1-37
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1, 4-37
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1, 4-37
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1, 4-37
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1, 4-37

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 27-Apr-2023 and 01-May-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.



Martin Cowell - BSc
Client Services Manager - Environmental

FocusAnalytics

Semi Quantitative Analysis of Soil

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Site: 33097

Date sample(s) received: 16/11/2022

Date sample(s) analysed: 06/12/2022

Samples taken by: Elliot Bish

Certificate / Job Number: Q-00219/33097

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
1	TP1 0.6M		761	ORF, NAD
2	TP1 2.0M		673	AMO, CHR, ORF
3	TP1 SUR		679	CHR, ORF
4	TP10 0.8m		558	ORF, SMF, NAD
5	TP10 2.0M		849	CHR, ORF, SMF
6	TP10 SUR		728	ORF, NAD
7	TP11 0.6M		703	ORF, NAD
8	TP11 1.5M		699	ORF, NAD
9	TP11 SUR		571	ORF, NAD
10	TP12 1.2M		732	AMO, CHR, ORF
11	TP12 2.7M		690	ORF, NAD
12	TP12 SUR		629	CHR, ORF
13	TP13 1.0M		782	ORF, NAD
14	TP13 3.2M		1004	CHR, ORF
15	TP13 SUR		705	ORF, NAD
16	TP14 0.8M		631	ORF, NAD
17	TP14 1.2M		627	ORF, NAD
18	TP14 SUR		727	ORF, NAD
19	TP15 0.5M		599	ORF, NAD
20	TP15 0.8M		559	ORF, NAD
21	TP15 SUR		601	ORF, NAD
22	TP16 0.3M		657	CHR, ORF
23	TP16 0.5M		632	CHR, ORF
24	TP16 SUR		783	ORF, NAD
25	TP17 0.7M		691	ORF, NAD
26	TP17 3.7M		601	CHR, ORF
27	TP17 SUR		599	ORF, NAD

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
28	TP18 1.2M		683	ORF, NAD
29	TP18 SUR		654	AMO, CHR, ORF
30	TP19 0.8M		785	ORF, NAD
31	TP19 SUR		634	CHR, ORF, SMF
32	TP2 1.8M		722	ORF, NAD
33	TP2 3.0M		494	AMO, CHR, ORF
34	TP2 SUR		688	ORF, NAD
35	TP20 1.5M		732	ORF, NAD
36	TP20 SUR		654	ORF, NAD
37	TP21 1.0M		793	ORF, NAD
38	TP21 SUR		613	ORF, NAD
39	TP22 1.0M		734	ORF, NAD
40	TP22 SUR		542	ORF, NAD
41	TP23 1.2M		732	ORF, NAD
42	TP23 SUR		676	ORF, NAD
43	TP24 1.5M		733	ORF, NAD
44	TP24 SUR		616	ORF, NAD
45	TP25 2.0M		722	ORF, NAD
46	TP25 SUR		735	ORF, NAD
47	TP26 0.8M		642	ORF, NAD
48	TP26 1.5M		646	ORF, NAD
49	TP26 SUR		761	ORF, NAD
50	TP27 1.0M		644	CHR, ORF
51	TP27 1.7M		692	ORF, NAD
52	TP27 SUR		701	ORF, NAD
53	TP28 0.5M		689	ORF, NAD
54	TP28 SUR		678	ORF, NAD
55	TP29 0.3M		649	ORF, NAD
56	TP29 SUR		617	ORF, NAD
57	TP3 0.7M		850	CHR, ORF
58	TP3 2.0M		776	AMO, CHR, ORF, SMF
59	TP3 SUR		710	ORF, NAD
60	TP30 1.5M		768	ORF, NAD
61	TP30 3.5M		779	ORF, NAD
62	TP30 SUR		699	ORF, NAD
63	TP31 1.0M		732	ORF, NAD
65	TP31 SUR		604	ORF, NAD
66	TP32 0.5M		579	CHR, ORF
67	TP32 1.5M		657	ORF, NAD
68	TP32 SUR		557	ORF, NAD
69	TP33 0.5M		698	ORF, NAD
70	TP33 SUR		675	ORF, NAD
71	TP34 0.5M		722	ORF, NAD
72	TP34 SUR		596	AMO, CHR, ORF

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
73	TP35 1.0M		559	CHR, ORF
74	TP35 2.5M		932	CHR, ORF
75	TP35 SUR		596	CHR, ORF
76	TP4 1.0M		705	CHR, ORF
77	TP4 SUR		698	ORF, NAD
78	TP5 2.0M		779	CHR, ORF
79	TP5 3.0M		681	CHR, ORF
80	TP5 SUR		659	CHR, ORF
81	TP6 1.5M		754	AMO, CHR, ORF
82	TP6 3.0M		663	ORF, NAD
83	TP6 SUR		697	ORF, NAD
84	TP7 1.8M		685	ORF, NAD
85	TP7 3.0M		589	ORF, NAD
86	TP7 SUR		618	ORF, NAD
87	TP8 1.0M		634	ORF, NAD
88	TP8 2.0M		638	CHR, ORF
89	TP8 SUR		654	ORF, NAD
90	TP9 1.5M		667	CHR, ORF
91	TP9 2.5M		619	CHR, ORF, SMF
92	TP9 SUR		682	ORF, NAD
93	TR29 2.9M		802	ORF, NAD
94	TR10 0.5M		746	ORF, NAD
95	TR11 0.3M		679	ORF, NAD
96	TR16 0.4M		729	ORF, NAD
97	TR22 1.0M		824	ORF, NAD
98	TR27 0.3M		743	ORF, NAD
99	TR27 4.8M		782	ORF, NAD
100	TR9 0.2M		747	ORF, NAD

Fibre Identification Key:

CHR – Chrysotile (White Asbestos)
AMO – Amosite (Brown / Grey Asbestos)
CRO – Crocidolite – (Blue Asbestos)
UMF – Unknown Mineral Fibre
ORF – Organic Fibre
SMF – Synthetic Mineral Fibre
NFD – No Fibres Detected
NAD – No Asbestos Detected

Scope of Accreditation:

1. The analytical comments marked (*) stated in the semi-quantitative analysis and the calculations in the semi-quantitative analysis of asbestos in soil are beyond Focus Analytics scope of accreditation.
2. The laboratory is not responsible for sampling errors when we have not taken the sample.
3. This certificate should be read in its entirety and shall not be reproduced except in full, without written approval of the laboratory.

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
1	TP1 0.6M	761.2	548.6	27.9	(>10mm) Fraction	75.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	154.0	-	NAD	-					
					(<2mm) Fraction	319.3	-	NAD	-					
2	TP1 2.0M	672.7	487.7	27.4	(>10mm) Fraction	100.2	-	NAD	-	0.0138	-	<0.001	0.003	0.003
					(10-2mm) Fraction	152.3	0.0095	FFF	100					
					(<2mm) Fraction	235.2	0.0043	FFF	100					
3	TP1 SUR	679.3	496.0	27.0	(>10mm) Fraction	13.4	-	NAD	-	0.0005	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	146.4	-	NAD	-					
					(<2mm) Fraction	336.2	0.0005	FFF	100					
4	TP10 0.8m	557.9	372.0	33.2	(>10mm) Fraction	57.6	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	88.6	-	NAD	-					
					(<2mm) Fraction	225.8	-	NAD	-					
5	TP10 2.0M	848.6	452.8	46.6	(>10mm) Fraction	48.0	-	NAD	-	0.0060	-	<0.001	0.001	0.001
					(10-2mm) Fraction	140.6	0.0021	FFF	100					
					(<2mm) Fraction	264.2	0.0039	FFF	100					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
6	TP10 SUR	728.0	540.6	25.7	(>10mm) Fraction	74.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	173.4	-	NAD	-					
					(<2mm) Fraction	292.8	-	NAD	-					
7	TP11 0.6M	702.7	499.7	28.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	20.9	-	NAD	-					
					(<2mm) Fraction	478.8	-	NAD	-					
8	TP11 1.5	699.4	462.5	33.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	36.3	-	NAD	-					
					(<2mm) Fraction	426.2	-	NAD	-					
9	TP11 SUR	571.2	345.9	39.4	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	44.0	-	NAD	-					
					(<2mm) Fraction	301.9	-	NAD	-					
10	TP12 1.2M	732.2	477.7	34.7	(>10mm) Fraction	32.2	-	NAD	-	0.0238	-	<0.001	0.005	0.005
					(10-2mm) Fraction	148.1	-	NAD	-					
					(<2mm) Fraction	297.4	0.0238	FFF	100					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
11	TP12 2.7M	690.3	445.3	35.5	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	121.0	-	NAD	-					
					(<2mm) Fraction	324.3	-	NAD	-					
12	TP12 SUR	628.6	439.7	30.0	(>10mm) Fraction	22.8	-	NAD	-	0.0090	-	<0.001	0.002	0.002
					(10-2mm) Fraction	144.7	0.0087	FFF	100					
					(<2mm) Fraction	272.2	0.0003	FFF	100					
13	TP13 1.0M	781.9	569.3	27.1	(>10mm) Fraction	116.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	177.2	-	NAD	-					
					(<2mm) Fraction	275.8	-	NAD	-					
14	TP13 3.2M	1003.5	761.0	24.1	(>10mm) Fraction	191.9	-	NAD	-	0.0005	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	287.3	-	NAD	-					
					(<2mm) Fraction	281.8	0.0005	FFF	100					
15	TP13 SUR	704.9	507.3	27.9	(>10mm) Fraction	45.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	173.4	-	NAD	-					
					(<2mm) Fraction	288.6	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
16	TP14 0.8M	630.9	436.5	30.7	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	217.4	-	NAD	-					
					(<2mm) Fraction	219.1	-	NAD	-					
17	TP14 1.2M	626.7	414.2	33.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	217.9	-	NAD	-					
					(<2mm) Fraction	196.3	-	NAD	-					
18	TP14 SUR	726.8	568.5	21.7	(>10mm) Fraction	83.5	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	243.2	-	NAD	-					
					(<2mm) Fraction	241.8	-	NAD	-					
19	TP15 0.5M	599.0	410.0	31.6	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	169.2	-	NAD	-					
					(<2mm) Fraction	240.8	-	NAD	-					
20	TP15 0.8M	558.9	379.6	32.0	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	170.0	-	NAD	-					
					(<2mm) Fraction	209.6	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
21	TP15 SUR	600.7	436.0	27.3	(>10mm) Fraction	21.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	115.6	-	NAD	-					
					(<2mm) Fraction	299.0	-	NAD	-					
22	TP16 0.3m	657.3	484.7	26.2	(>10mm) Fraction	19.8	-	NAD	-	0.0001	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	200.1	-	NAD	-					
					(<2mm) Fraction	264.8	0.0001	FFF	100					
23	TP16 0.5M	631.7	460.6	27.0	(>10mm) Fraction	6.2	-	NAD	-	0.0001	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	238.0	-	NAD	-					
					(<2mm) Fraction	216.4	0.0001	FFF	100					
24	TP16 SUR	782.6	663.8	15.1	(>10mm) Fraction	138.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	303.0	-	NAD	-					
					(<2mm) Fraction	222.4	-	NAD	-					
25	TP17 0.7M	690.6	473.5	31.4	(>10mm) Fraction	20.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	251.8	-	NAD	-					
					(<2mm) Fraction	201.5	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
26	TP17 3.7M	601.2	287.6	52.1	(>10mm) Fraction	23.3	-	NAD	-	0.0245	-	<0.001	0.009	0.009
					(10-2mm) Fraction	95.1	0.0200	FFF	100					
					(<2mm) Fraction	169.2	0.0045	FFF	100					
27	TP17 SUR	599.4	437.9	26.9	(>10mm) Fraction	15.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	112.9	-	NAD	-					
					(<2mm) Fraction	309.8	-	NAD	-					
28	TP18 1.2M	683.2	475.6	30.4	(>10mm) Fraction	14.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	140.0	-	NAD	-					
					(<2mm) Fraction	321.2	-	NAD	-					
29	TP18 SUR	654.3	477.8	26.9	(>10mm) Fraction	37.0	-	NAD	-	0.0085	-	<0.001	0.002	0.002
					(10-2mm) Fraction	116.3	0.0085	FFF	100					
					(<2mm) Fraction	324.5	-	NAD	-					
30	TP19 0.8M	784.8	508.2	35.2	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	56.0	-	NAD	-					
					(<2mm) Fraction	452.2	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
31	TP19 SUR	633.7	438.6	30.7	(>10mm) Fraction	24.8	-	NAD	-	0.0007	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	116.3	0.0007	FFF	100					
					(<2mm) Fraction	297.5	-	NAD	-					
32	TP2 1.8M	722.0	509.2	29.5	(>10mm) Fraction	25.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	195.6	-	NAD	-					
					(<2mm) Fraction	288.5	-	NAD	-					
33	TP2 3.0m	493.6	285.2	42.2	(>10mm) Fraction	26.8	-	NAD	-	0.0025	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	97.0	0.0166	CMP	15					
					(<2mm) Fraction	161.4	-	NAD	-					
34	TP2 SUR	688.4	458.4	33.4	(>10mm) Fraction	15.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	153.0	-	NAD	-					
					(<2mm) Fraction	290.2	-	NAD	-					
35	TP20 1.5M	732.0	462.8	36.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	15.7	-	NAD	-					
					(<2mm) Fraction	447.1	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
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Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
36	TP20 SUR	653.7	466.5	28.6	(>10mm) Fraction	49.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	150.8	-	NAD	-					
					(<2mm) Fraction	266.4	-	NAD	-					
37	TP21 1.0M	792.8	498.2	37.1	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	40.2	-	NAD	-					
					(<2mm) Fraction	458.0	-	NAD	-					
38	TP21 SUR	612.8	467.3	23.6	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	129.0	-	NAD	-					
					(<2mm) Fraction	338.3	-	NAD	-					
39	TP22 1.0M	734.2	480.0	34.6	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	53.0	-	NAD	-					
					(<2mm) Fraction	427.0	-	NAD	-					
40	TP22 SUR	542.0	377.9	30.3	(>10mm) Fraction	7.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	108.0	-	NAD	-					
					(<2mm) Fraction	262.2	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
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41	TP23 1.2M	731.9	481.5	34.1	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	16.8	-	NAD	-					
					(<2mm) Fraction	464.7	-	NAD	-					
42	TP23 SUR	676.0	448.1	33.7	(>10mm) Fraction	14.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	102.7	-	NAD	-					
					(<2mm) Fraction	331.0	-	NAD	-					
43	TP24 1.5M	732.9	481.5	34.2	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	16.8	-	NAD	-					
					(<2mm) Fraction	464.7	-	NAD	-					
44	TP24 SUR	616.1	493.5	19.9	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	40.1	-	NAD	-					
					(<2mm) Fraction	453.4	-	NAD	-					
45	TP25 2.0M	721.8	521.4	27.7	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	29.8	-	NAD	-					
					(<2mm) Fraction	491.6	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
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46	TP25 SUR	735.2	635.7	13.5	(>10mm) Fraction	120.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	297.6	-	NAD	-					
					(<2mm) Fraction	217.7	-	NAD	-					
47	TP26 0.8M	641.6	493.6	23.0	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	107.5	-	NAD	-					
					(<2mm) Fraction	386.1	-	NAD	-					
48	TP26 1.5M	645.7	497.2	22.9	(>10mm) Fraction	10.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	53.2	-	NAD	-					
					(<2mm) Fraction	434.0	-	NAD	-					
49	TP26 SUR	761.0	637.9	16.2	(>10mm) Fraction	98.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	321.2	-	NAD	-					
					(<2mm) Fraction	218.7	-	NAD	-					
50	TP27 1.0M	644.3	500.2	22.3	(>10mm) Fraction	88.1	-	NAD	-	0.0187	-	<0.001	0.004	0.004
					(10-2mm) Fraction	130.8	0.1158	CMP	15					
					(<2mm) Fraction	281.3	0.0013	FFF	100					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
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51	TP27 1.7M	692.3	485.8	29.8	(>10mm) Fraction	6.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	72.4	-	NAD	-					
					(<2mm) Fraction	407.0	-	NAD	-					
52	TP27 SUR	700.9	568.0	18.9	(>10mm) Fraction	60.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	260.0	-	NAD	-					
					(<2mm) Fraction	247.6	-	NAD	-					
53	TP28 0.5M	689.2	396.0	42.5	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	53.5	-	NAD	-					
					(<2mm) Fraction	342.5	-	NAD	-					
54	TP28 SUR	678.1	521.8	23.0	(>10mm) Fraction	60.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	221.4	-	NAD	-					
					(<2mm) Fraction	239.6	-	NAD	-					
55	TP29 0.3M	649.4	445.7	31.3	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	3.9	-	NAD	-					
					(<2mm) Fraction	441.8	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
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Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
56	TP29 SUR	617.2	435.7	29.4	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	91.1	-	NAD	-					
					(<2mm) Fraction	344.6	-	NAD	-					
57	TP3 0.7M	850.3	738.9	13.1	(>10mm) Fraction	75.5	-	NAD	-	0.0002	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	246.1	0.0002	FFF	100					
					(<2mm) Fraction	417.3	-	NAD	-					
58	TP3 2.0M	775.9	545.2	29.7	(>10mm) Fraction	60.7	4.3507	CMP	15	0.6597	0.12	<0.001	0.001	0.001
					(10-2mm) Fraction	182.3	0.0050	FFF	100					
					(<2mm) Fraction	302.2	0.0021	FFF	100					
59	TP3 SUR	710.0	501.1	29.4	(>10mm) Fraction	39.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	115.3	-	NAD	-					
					(<2mm) Fraction	346.7	-	NAD	-					
60	TP30 1.5M	768.2	568.1	26.0	(>10mm) Fraction	98.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	213.7	-	NAD	-					
					(<2mm) Fraction	255.7	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

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Date sample(s) received: 16/11/2022
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61	TP30 3.5M	779.0	537.1	31.1	(>10mm) Fraction	16.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	248.0	-	NAD	-					
					(<2mm) Fraction	272.8	-	NAD	-					
62	TP30 SUR	699.4	540.0	22.7	(>10mm) Fraction	54.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	190.1	-	NAD	-					
					(<2mm) Fraction	295.1	-	NAD	-					
63	TP31 1.0M	731.6	473.7	35.2	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	26.5	-	NAD	-					
					(<2mm) Fraction	447.2	-	NAD	-					
65	TP31 SUR	604.1	448.6	25.7	(>10mm) Fraction	65.9	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	179.6	-	NAD	-					
					(<2mm) Fraction	203.1	-	NAD	-					
66	TP32 0.5M	579.2	371.4	35.9	(>10mm) Fraction	16.5	-	NAD	-	0.0002	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	128.4	-	NAD	-					
					(<2mm) Fraction	226.5	0.0002	FFF	100					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
67	TP32 1.5M	657.3	428.1	34.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	158.1	-	NAD	-					
					(<2mm) Fraction	270.0	-	NAD	-					
68	TP32 SUR	556.9	357.6	35.7	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	105.9	-	NAD	-					
					(<2mm) Fraction	251.7	-	NAD	-					
69	TP33 0.5M	697.7	505.7	27.4	(>10mm) Fraction	10.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	207.9	-	NAD	-					
					(<2mm) Fraction	287.4	-	NAD	-					
70	TP33 SUR	675.3	527.2	21.9	(>10mm) Fraction	60.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	197.8	-	NAD	-					
					(<2mm) Fraction	269.2	-	NAD	-					
71	TP34 0.5M	721.7	457.1	36.6	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	29.2	-	NAD	-					
					(<2mm) Fraction	427.9	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
72	TP34 SUR	596.1	425.5	28.6	(>10mm) Fraction	5.1	-	NAD	-	0.0119	-	<0.001	0.003	0.003
					(10-2mm) Fraction	204.2	-	NAD	-					
					(<2mm) Fraction	216.2	0.0119	FFF	100					
73	TP35 1.0M	559.4	317.0	43.3	(>10mm) Fraction	0.0	-	NAD	-	0.0005	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	139.6	-	NAD	-					
					(<2mm) Fraction	177.4	0.0005	FFF	100					
74	TP35 2.5M	932.0	581.5	37.6	(>10mm) Fraction	108.0	-	NAD	-	0.0376	-	<0.001	0.007	0.007
					(10-2mm) Fraction	171.9	0.2367	CMP	15					
					(<2mm) Fraction	301.6	0.0021	FFF	100					
75	TP35 SUR	596.1	425.5	28.6	(>10mm) Fraction	5.1	-	NAD	-	0.0001	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	204.2	-	NAD	-					
					(<2mm) Fraction	216.2	0.0001	FFF	100					
76	TP4 1.0M	704.7	523.0	25.7	(>10mm) Fraction	19.8	-	NAD	-	0.0025	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	190.6	0.0022	FFF	100					
					(<2mm) Fraction	312.6	0.0003	FFF	100					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
77	TP4 SUR	697.6	526.3	24.5	(>10mm) Fraction	45.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	157.8	-	NAD	-					
					(<2mm) Fraction	322.8	-	NAD	-					
78	TP5 2.0M	779.2	534.6	31.4	(>10mm) Fraction	157.8	-	NAD	-	0.0034	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	142.9	0.0031	FFF	100					
					(<2mm) Fraction	233.9	0.0003	FFF	100					
79	TP5 3.0M	681.0	492.3	27.7	(>10mm) Fraction	86.0	-	NAD	-	0.0004	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	188.1	-	NAD	-					
					(<2mm) Fraction	218.2	0.0004	FFF	100					
80	TP5 SUR	659.4	482.4	26.8	(>10mm) Fraction	12.9	-	NAD	-	0.0068	-	<0.001	0.001	0.001
					(10-2mm) Fraction	165.7	0.0021	FFF	100					
					(<2mm) Fraction	303.8	0.0047	FFF	100					
81	TP6 1.5M	754.0	556.7	26.2	(>10mm) Fraction	47.6	-	NAD	-	0.0012	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	240.0	-	NAD	-					
					(<2mm) Fraction	269.1	0.0012	FFF	100					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
82	TP6 3.0M	662.5	454.6	31.3	(>10mm) Fraction	46.9	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	191.6	-	NAD	-					
					(<2mm) Fraction	216.1	-	NAD	-					
83	TP6 SUR	696.6	491.2	29.4	(>10mm) Fraction	16.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	90.4	-	NAD	-					
					(<2mm) Fraction	384.6	-	NAD	-					
84	TP7 1.8M	684.9	512.6	25.1	(>10mm) Fraction	63.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	165.1	-	NAD	-					
					(<2mm) Fraction	284.2	-	NAD	-					
85	TP7 3.0M	588.6	417.5	29.0	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	232.6	-	NAD	-					
					(<2mm) Fraction	184.9	-	NAD	-					
86	TP7 SUR	618.3	362.3	41.4	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	17.3	-	NAD	-					
					(<2mm) Fraction	345.0	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
87	TP8 1.0M	634.4	461.2	27.3	(>10mm) Fraction	16.6	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	231.6	-	NAD	-					
					(<2mm) Fraction	213.0	-	NAD	-					
88	TP8 2.0M	637.9	466.2	26.8	(>10mm) Fraction	45.3	-	NAD	-	0.0023	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	211.2	-	NAD	-					
					(<2mm) Fraction	209.7	0.0023	FFF	100					
89	TP8 SUR	654.2	382.2	41.6	(>10mm) Fraction	8.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	60.1	-	NAD	-					
					(<2mm) Fraction	314.1	-	NAD	-					
90	TP9 1.5M	667.3	491.7	26.3	(>10mm) Fraction	15.8	-	NAD	-	0.0027	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	200.9	-	NAD	-					
					(<2mm) Fraction	275.0	0.0027	FFF	100					
91	TP9 2.5M	618.9	389.0	37.1	(>10mm) Fraction	13.8	-	NAD	-	0.0013	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	139.6	-	NAD	-					
					(<2mm) Fraction	235.6	0.0013	FFF	100					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
92	TP9 SUR	681.7	524.9	22.9	(>10mm) Fraction	53.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	172.4	-	NAD	-					
					(<2mm) Fraction	298.8	-	NAD	-					
93	TR29 2.9M	801.7	556.1	30.6	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	146.1	-	NAD	-					
					(<2mm) Fraction	410.0	-	NAD	-					
94	TR10 0.5M	745.9	632.4	15.1	(>10mm) Fraction	106.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	317.8	-	NAD	-					
					(<2mm) Fraction	208.5	-	NAD	-					
95	TR11 0.3M	678.5	502.9	25.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	82.1	-	NAD	-					
					(<2mm) Fraction	420.8	-	NAD	-					
96	TR16 0.4M	728.8	571.3	21.5	(>10mm) Fraction	25.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	228.7	-	NAD	-					
					(<2mm) Fraction	317.4	-	NAD	-					

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 16/11/2022
Date sample(s) analysed: 06/12/2022

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
97	TR22 1.0M	824.1	479.0	41.9	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	114.9	-	NAD	-					
					(<2mm) Fraction	364.1	-	NAD	-					
98	TR27 0.3M	742.7	615.2	17.1	(>10mm) Fraction	68.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	233.4	-	NAD	-					
					(<2mm) Fraction	313.7	-	NAD	-					
99	TR27 4.8M	781.5	493.8	36.8	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	145.6	-	NAD	-					
					(<2mm) Fraction	348.2	-	NAD	-					
100	TR9 0.2M	747.3	589.7	21.1	(>10mm) Fraction	80.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	230.4	-	NAD	-					
					(<2mm) Fraction	278.9	-	NAD	-					

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Analysis Method:

Samples submitted have been analysed to determine the mass fraction of asbestos in soil using low powered stereo microscopy followed by polarised light microscopy (PLM) including dispersion staining techniques as documented in (AS 4964-2004), Method for the qualitative identification of asbestos in bulk samples, BRANZ, New Zealand Guidelines for *Assessing and Managing Asbestos in Soils:2017 and (TP 04) our internal method Technical Procedure for Qualitative and Semi Qualitative analysis of asbestos in soil.*

Product Identification Key:

BTP	Bituminous Product	LSE	Loose Fill Insulation
CMP	Cement Product	NAD	No Asbestos Detected
COM	Composite	PPR	Paper Product
FFF	Free Fibres	RPL	Reinforced Plastics
FIB	Fibre Board	TXC	Textured Coating
GCP	Gaskets (compressed)	VNP	Vinyl Products
GRW	Gaskets (rope/woven)	VPP	Vinyl with paper backing
INB	Insulating Board	WVP	Woven Product

Interpretation of Key:

[a] Percentage of Asbestos in product is adopted from HSG 264 - 2012, Asbestos the survey guide, Appendix 2, ACMS in buildings and categorized in our internal Technical Procedure (TP04) for Qualitative and Semi-Quantitative analysis of asbestos in soil. A dash (-) denotes that there was no asbestos found in that fraction.

[b] Total Mass of Asbestos is the sum mass of asbestos-by-asbestos type in product type([a]) plus the mass of free fibre asbestos. A dash (-) denotes that there was no total mass of asbestos calculated asbestos found in that fraction.

[c] Bonded Asbestos Containing Material in the greater than 10mm fraction as percentage of the total sample (% w/w). A dash (-) denotes that there was no bonded asbestos containing materials found in that fraction.

[d] Asbestos as Fibrous Asbestos (FA) in greater than 10mm fraction as percentage of total sample (% w/w).

[e] Asbestos as Asbestos Fines (AF) in less than 10mm fraction as a percentage of total sample (% w/w).

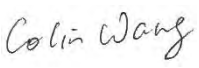
[f] Total Friable Asbestos combining Fibrous Asbestos and Asbestos Fines as the percentage weight for weight of the total sample (% w/w).

Sample Retention: Hold soil samples will only be stored for one month from date of receipt.

Analyst Name: Rebecca Rawlings

Analyst Signature: 

Reviewed By KTP: Colin Wang

Reviewer Signature: 

Focus Analytics

Semi Quantitative Analysis of Soil

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Tel: +64 (0) 9 525 0568

Site: : 33097

Date sample(s) received: 27/04/2023

Date sample(s) analysed: 3/05/2023

Samples taken by: EB/BLM

Certificate / Job Number: Q-00417/33097

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
1	HA1 0.2-0.6m		569	ORF, NAD
2	TP37 0.2m		786	ORF, NAD
3	TP38 0.1m		704	ORF, NAD
4	TP38 0.3m		644	CHR, ORF
5	TP 38 2.0m		753	ORF, NAD
6	TP39 0.2m		671	ORF, NAD
7	TP39 0.5m		827	CHR, ORF
8	TP40 0.6m		765	ORF, NAD
9	TP40 1.0m		672	AMO, CHR, ORF
10	TP41 cap 0.2m		751	ORF, NAD
11	TP42 cap 0.2m		842	ORF, NAD
12	TP42 cap 1.0m		708	ORF, NAD
13	TP43 cap 0.3m		696	ORF, NAD
14	TP43 cap 0.7m		572	ORF, NAD
15	TP44 cap 0.4m		835	ORF, NAD
16	TP44 IF 1.0m		721	ORF, NAD
17	TP45 cap 0.2m		788	ORF, NAD
18	TP46 0.1m		677	ORF, NAD
19	TP46 0.3m		553	ORF, NAD
20	TP47 0.1m		541	ORF, NAD
21	TP48 0.1m		498	ORF, NAD
22	TP49 0.1m		573	ORF, NAD
23	TP50 0.1m		785	ORF, NAD
24	TP50 0.3m		673	CHR, ORF
25	TP50 0.5m		656	CHR, ORF
26	TP51 0.1m		581	ORF, NAD
27	TP51 0.25m		530	ORF, NAD

Qualitative Analysis of Asbestos

Lab ID	Sample ID	Sample Details	Sample Weight (g) (as received)	Fibres Identified
28	TP52 0.1m		672	**ORF, NAD**
29	TP54 0.1m		639	**CHR, ORF**
30	TP55 0.1m		910	**ORF, NAD**
31	TP56 0.1m		504	**CHR, ORF**
32	TP56 2.3m		533	**ORF, NAD**
33	TP57 0.8m		698	**ORF, NAD**
34	TP57 1.5m		598	**ORF, NAD**

Fibre Identification Key:

CHR – Chrysotile (White Asbestos)
AMO – Amosite (Brown / Grey Asbestos)
CRO – Crocidolite – (Blue Asbestos)
UMF – Unknown Mineral Fibre
ORF – Organic Fibre
SMF – Synthetic Mineral Fibre
NFD – No Fibres Detected
NAD – No Asbestos Detected

Scope of Accreditation:

1. The analytical comments marked (*) stated in the semi-quantitative analysis and the calculations in the semi-quantitative analysis of asbestos in soil are beyond Focus Analytics scope of accreditation.
2. The laboratory is not responsible for sampling errors when we have not taken the sample.
3. This certificate should be read in its entirety and shall not be reproduced except in full, without written approval of the laboratory.

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*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
1	HA1 0.2-0.6m	569.2	450.8	20.8	(>10mm) Fraction	91.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	163.7	-	NAD	-					
					(<2mm) Fraction	195.3	-	NAD	-					
2	TP37 0.2m	786.2	659.0	16.2	(>10mm) Fraction	108.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	324.1	-	NAD	-					
					(<2mm) Fraction	226.1	-	NAD	-					
3	TP38 0.1m	704.3	610.7	13.3	(>10mm) Fraction	111.5	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	206.3	-	NAD	-					
					(<2mm) Fraction	292.9	-	NAD	-					
4	TP38 0.3m	643.9	513.3	20.2	(>10mm) Fraction	58.0	-	NAD	-	0.0014	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	148.0	0.0014	FFF	100					
					(<2mm) Fraction	307.3	-	NAD	-					
5	TP 38 2.0m	753.1	588.4	21.9	(>10mm) Fraction	132.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	196.0	-	NAD	-					
					(<2mm) Fraction	259.7	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
6	TP39 0.2m	670.5	552.1	17.6	(>10mm) Fraction	109.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	160.4	-	NAD	-					
					(<2mm) Fraction	282.3	-	NAD	-					
7	TP39 0.5m	826.7	678.9	17.8	(>10mm) Fraction	118.1	-	NAD	-	0.0051	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	265.6	0.0051	FFF	100					
					(<2mm) Fraction	295.2	-	NAD	-					
8	TP40 0.6m	765.3	602.0	21.3	(>10mm) Fraction	85.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	233.8	-	NAD	-					
					(<2mm) Fraction	283.0	-	NAD	-					
9	TP40 1.0m	671.7	499.4	25.6	(>10mm) Fraction	53.3	-	NAD	-	0.0413	-	<0.001	0.008	0.008
					(10-2mm) Fraction	191.8	0.1273	INB	25					
					(<2mm) Fraction	254.3	0.0095	FFF	100					
10	TP41 cap 0.2m	751.2	663.5	11.7	(>10mm) Fraction	248.9	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	253.9	-	NAD	-					
					(<2mm) Fraction	160.7	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
11	TP42 cap 0.2m	841.7	720.1	14.4	(>10mm) Fraction	176.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	322.6	-	NAD	-					
					(<2mm) Fraction	220.7	-	NAD	-					
12	TP42 cap 1.0m	707.7	516.5	26.9	(>10mm) Fraction	38.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	282.5	-	NAD	-					
					(<2mm) Fraction	195.3	-	NAD	-					
13	TP43 cap 0.3m	695.5	595.4	14.3	(>10mm) Fraction	101.7	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	346.7	-	NAD	-					
					(<2mm) Fraction	147.0	-	NAD	-					
14	TP43 cap 0.7m	572.3	408.6	28.6	(>10mm) Fraction	47.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	202.0	-	NAD	-					
					(<2mm) Fraction	159.6	-	NAD	-					
15	TP44 cap 0.4m	834.8	734.5	11.9	(>10mm) Fraction	237.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	343.6	-	NAD	-					
					(<2mm) Fraction	153.8	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
16	TP44 IF 1.0m	721.0	539.9	25.1	(>10mm) Fraction	108.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	292.6	-	NAD	-					
					(<2mm) Fraction	139.2	-	NAD	-					
17	TP45 cap 0.2m	788.1	708.6	10.1	(>10mm) Fraction	205.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	368.4	-	NAD	-					
					(<2mm) Fraction	135.2	-	NAD	-					
18	TP46 0.1m	677.1	482.9	28.7	(>10mm) Fraction	26.9	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	174.8	-	NAD	-					
					(<2mm) Fraction	281.2	-	NAD	-					
19	TP46 0.3m	553.2	365.7	33.9	(>10mm) Fraction	36.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	183.2	-	NAD	-					
					(<2mm) Fraction	146.3	-	NAD	-					
20	TP47 0.1m	540.6	357.1	33.9	(>10mm) Fraction	23.4	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	149.2	-	NAD	-					
					(<2mm) Fraction	184.5	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
21	TP48 0.1m	498.0	342.7	31.2	(>10mm) Fraction	25.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	186.3	-	NAD	-					
					(<2mm) Fraction	131.1	-	NAD	-					
22	TP49 0.1m	572.9	403.6	29.4	(>10mm) Fraction	31.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	191.2	-	NAD	-					
					(<2mm) Fraction	181.2	-	NAD	-					
23	TP50 0.1m	785.2	583.1	25.7	(>10mm) Fraction	140.3	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	213.8	-	NAD	-					
					(<2mm) Fraction	229.0	-	NAD	-					
24	TP50 0.3m	672.5	502.4	25.2	(>10mm) Fraction	109.1	-	NAD	-	0.0001	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	122.0	0.0001	FFF	100					
					(<2mm) Fraction	271.3	-	NAD	-					
25	TP50 0.5m	656.1	537.9	18.0	(>10mm) Fraction	151.8	-	NAD	-	0.0025	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	163.5	0.0025	FFF	100					
					(<2mm) Fraction	222.6	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
26	TP51 0.1m	580.6	421.9	27.3	(>10mm) Fraction	46.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	162.7	-	NAD	-					
					(<2mm) Fraction	213.0	-	NAD	-					
27	TP51 0.25m	530.1	332.9	37.2	(>10mm) Fraction	0.0	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	93.8	-	NAD	-					
					(<2mm) Fraction	239.1	-	NAD	-					
28	TP52 0.1m	672.4	505.6	24.8	(>10mm) Fraction	59.8	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	212.9	-	NAD	-					
					(<2mm) Fraction	232.9	-	NAD	-					
29	TP54 0.1m	639.2	481.5	24.6	(>10mm) Fraction	53.7	-	NAD	-	0.0213	-	<0.001	0.004	0.004
					(10-2mm) Fraction	200.0	0.0201	FFF	100					
					(<2mm) Fraction	227.8	0.0012	FFF	100					
30	TP55 0.1m	910.0	824.5	9.4	(>10mm) Fraction	7.6	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	559.7	-	NAD	-					
					(<2mm) Fraction	257.2	-	NAD	-					

FocusAnalytics

*Semi Quantitative Analysis of Soil

*Semi Quantitative Analysis of Asbestos in Soil

Date sample(s) received: 27/04/2023
Date sample(s) analysed: 3/05/2023

Lab ID	Sample ID	As received weight (g)	Dry weight (g)	Moisture (%)	Fraction size (mm)	Dry fraction weight (g)	Asbestos product weight (g)	Asbestos product type	Percentage of asbestos in product [a]	Total mass of Asbestos in sample [b]	Bonded Asbestos containing material in sample (% w/w) [c]	Asbestos as FA (% w/w) [d]	Asbestos as AF (% w/w) [e]	Total Fibrous Asbestos + Asbestos Fines (Friable) (% w/w) [f]
31	TP56 0.1m	504.0	333.8	33.8	(>10mm) Fraction	12.7	-	NAD	-	0.0095	-	<0.001	0.003	0.003
					(10-2mm) Fraction	124.3	0.0087	FFF	100					
					(<2mm) Fraction	196.8	0.0008	FFF	100					
32	TP56 2.3m	533.0	326.2	38.8	(>10mm) Fraction	55.5	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	140.7	-	NAD	-					
					(<2mm) Fraction	130.0	-	NAD	-					
33	TP57 0.8m	697.6	536.6	23.0	(>10mm) Fraction	142.1	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	161.7	-	NAD	-					
					(<2mm) Fraction	232.8	-	NAD	-					
34	TP57 1.5m	597.6	421.0	29.5	(>10mm) Fraction	70.2	-	NAD	-	-	-	<0.001	<0.001	<0.001
					(10-2mm) Fraction	159.1	-	NAD	-					
					(<2mm) Fraction	191.7	-	NAD	-					

FocusAnalytics

Analysis Method:

Samples submitted have been analysed to determine the mass fraction of asbestos in soil using low powered stereo microscopy followed by polarised light microscopy (PLM) including dispersion staining techniques as documented in (AS 4964-2004), Method for the qualitative identification of asbestos in bulk samples, BRANZ, New Zealand Guidelines for *Assessing and Managing Asbestos in Soils:2017 and (TP 04) our internal method Technical Procedure for Qualitative and Semi Qualitative analysis of asbestos in soil.*

Product Identification Key:

BTP	Bituminous Product	LSE	Loose Fill Insulation
CMP	Cement Product	NAD	No Asbestos Detected
COM	Composite	PPR	Paper Product
FFF	Free Fibres	RPL	Reinforced Plastics
FIB	Fibre Board	TXC	Textured Coating
GCP	Gaskets (compressed)	VNP	Vinyl Products
GRW	Gaskets (rope/woven)	VPP	Vinyl with paper backing
INB	Insulating Board	WVP	Woven Product

Interpretation of Key:

[a] Percentage of Asbestos in product is adopted from HSG 264 - 2012, Asbestos the survey guide, Appendix 2, ACMS in buildings and categorized in our internal Technical Procedure (TP04) for Qualitative and Semi-Quantitative analysis of asbestos in soil. A dash (-) denotes that there was no asbestos found in that fraction.

[b] Total Mass of Asbestos is the sum mass of asbestos-by-asbestos type in product type([a]) plus the mass of free fibre asbestos. A dash (-) denotes that there was no total mass of asbestos calculated asbestos found in that fraction.

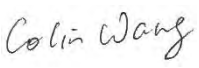
[c] Bonded Asbestos Containing Material in the greater than 10mm fraction as percentage of the total sample (% w/w). A dash (-) denotes that there was no bonded asbestos containing materials found in that fraction.

[d] Asbestos as Fibrous Asbestos (FA) in greater than 10mm fraction as percentage of total sample (% w/w).

[e] Asbestos as Asbestos Fines (AF) in less than 10mm fraction as a percentage of total sample (% w/w).

[f] Total Friable Asbestos combining Fibrous Asbestos and Asbestos Fines as the percentage weight for weight of the total sample (% w/w).

Sample Retention: Hold soil samples will only be stored for one month from date of receipt.

Analyst Name:	Rebecca Rawlings	**Analyst Signature:**	
Reviewed By KTP:	Colin Wang	**Reviewer Signature:**	

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Certificate of Analysis

Client:	Fraser Thomas Limited	**Lab No:**	3247082	SPv2
Contact:	Elliot Bish	**Date Received:**	19-Apr-2023	
	C/- Fraser Thomas Limited	**Date Reported:**	05-May-2023	
	PO Box 204006	**Quote No:**	117021	
	Highbrook	**Order No:**	PO000879	
	Auckland 2161	**Client Reference:**	33097	
		Submitted By:	Ben Laing-McConnell	

Sample Type: Sediment

Sample Name:		S1 17-Apr-2023	S2 17-Apr-2023 1:30 pm	S3 17-Apr-2023	S4 17-Apr-2023
Lab Number:		3247082.6	3247082.7	3247082.8	3247082.9
Individual Tests					
Dry Matter	g/100g as rcvd	41	17.9	39	40
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	31	< 20
Heavy metals screen level As,Cd,Cr,Cu,Ni,Pb,Zn					
Total Recoverable Arsenic	mg/kg dry wt	5	8	6	4
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.70	0.52	0.27
Total Recoverable Chromium	mg/kg dry wt	7	12	12	9
Total Recoverable Copper	mg/kg dry wt	14	22	24	15
Total Recoverable Lead	mg/kg dry wt	10.2	15.5	18.9	14.0
Total Recoverable Nickel	mg/kg dry wt	4	7	6	4
Total Recoverable Zinc	mg/kg dry wt	28	151	129	68
Asbestos in Soil					
As Received Weight	g	185.8	166.0	239.4	184.9
Dry Weight	g	97.7	36.0	128.3	80.3
<2mm Subsample Weight	g dry wt	54.9	22.5	54.4	31.8
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Solids*					
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.6	< 1.4	< 0.7	< 0.6
1-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
2-Methylnaphthalene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Acenaphthene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Anthracene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[a]anthracene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.058	< 0.14	< 0.061	< 0.058
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.057	< 0.14	< 0.061	< 0.058
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[e]pyrene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Benzo[k]fluoranthene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Chrysene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Fluoranthene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Fluorene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03

Sample Type: Sediment					
Sample Name:		S1 17-Apr-2023	S2 17-Apr-2023 1:30 pm	S3 17-Apr-2023	S4 17-Apr-2023
Lab Number:		3247082.6	3247082.7	3247082.8	3247082.9
Polycyclic Aromatic Hydrocarbons Screening in Solids*					
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Naphthalene	mg/kg dry wt	< 0.12	< 0.3	< 0.13	< 0.12
Perylene	mg/kg dry wt	0.07	< 0.06	< 0.03	0.05
Phenanthrene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03
Pyrene	mg/kg dry wt	< 0.03	< 0.06	< 0.03	< 0.03

Sample Type: Aqueous						
Sample Name:		S1 17-Apr-2023	S2 17-Apr-2023	S3 17-Apr-2023	S4 17-Apr-2023	P2 17-Apr-2023 12:30 pm
Lab Number:		3247082.1	3247082.2	3247082.3	3247082.4	3247082.5
Individual Tests						
Total Organic Carbon (TOC)‡	mg/L	-	-	-	-	4.3
pH	pH Units	6.8	6.7	6.7	-	6.9
Total Alkalinity	g/m³ as $CaCO_3$	-	-	-	-	410
Electrical Conductivity (EC)	mS/m	12.7	13.4	12.9	-	102.1
Total Suspended Solids	g/m³	< 3	< 3	6	-	-
Dissolved Boron	g/m³	-	-	-	-	29
Total Boron	g/m³	0.0154	0.078	0.060	-	-
Dissolved Iron	g/m³	-	-	-	-	< 0.02
Total Iron	g/m³	0.57	0.73	0.77	-	-
Dissolved Mercury	g/m³	-	-	-	-	< 0.00008
Total Mercury	g/m³	< 0.00008	< 0.00008	< 0.00008	-	-
Total Potassium	g/m³	3.6	3.7	3.7	-	-
Chloride	g/m³	16.2	16.5	15.9	-	13.4
Total Ammoniacal-N	g/m³	0.025	< 0.010	0.018	-	< 0.010
Nitrite-N	g/m³	0.007	0.003	0.006	-	< 0.002
Nitrate-N	g/m³	0.89	0.81	0.91	-	1.99
Nitrate-N + Nitrite-N	g/m³	0.89	0.82	0.91	-	1.99
Sulphate	g/m³	4.3	3.8	3.5	-	149
Polycyclic Aromatic Hydrocarbons Trace in Water, By Liq/Liq						
Acenaphthene	g/m³	-	-	-	< 0.000008	-
Acenaphthylene	g/m³	-	-	-	< 0.000008	-
Anthracene	g/m³	-	-	-	< 0.000008	-
Benzo[a]anthracene	g/m³	-	-	-	< 0.000008	-
Benzo[a]pyrene (BAP)	g/m³	-	-	-	< 0.000008	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	-	-	-	< 0.000008	-
Benzo[g,h,i]perylene	g/m³	-	-	-	< 0.000008	-
Benzo[k]fluoranthene	g/m³	-	-	-	< 0.000008	-
Chrysene	g/m³	-	-	-	< 0.000008	-
Dibenzo[a,h]anthracene	g/m³	-	-	-	< 0.000008	-
Fluoranthene	g/m³	-	-	-	< 0.000008	-
Fluorene	g/m³	-	-	-	< 0.000008	-
Indeno(1,2,3-c,d)pyrene	g/m³	-	-	-	< 0.000008	-
Naphthalene	g/m³	-	-	-	< 0.00004	-
Phenanthrene	g/m³	-	-	-	< 0.000008	-
Pyrene	g/m³	-	-	-	< 0.000008	-

Analyst's Comments

‡ Analysis subcontracted to an external provider. Refer to the Summary of Methods section for more details.

Appendix No.1 - Watercare Report

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Sediment

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	6-9
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	6-9
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	6-9
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	6-9
Total Recoverable Boron	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	20 mg/kg dry wt	6-9
Heavy metals screen level As,Cd,Cr,Cu,Ni,Pb,Zn	Dried sample, <2mm fraction. Nitric/Hydrochloric acid digestion, ICP-MS, screen level.	0.10 - 4 mg/kg dry wt	6-9
Polycyclic Aromatic Hydrocarbons Screening in Solids*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	6-9
Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 101c Waterloo Road, Christchurch.	0.1 g	6-9
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; 101c Waterloo Road, Christchurch.	0.1 g	6-9
<2mm Subsample Weight	Sample dried at 100 to 105°C, weight of <2mm sample fraction taken for asbestos identification if less than entire fraction. Analysed at Hill Laboratories - Asbestos; 101c Waterloo Road, Christchurch.	-	6-9
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; 101c Waterloo Road, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	6-9
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	6-9

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Total Organic Carbon (TOC)	Total Organic Carbon by Non-dispersive infrared detection - Carbon, Inorganic Carbon and Total Organic Carbon. Subcontracted to Watercare Services Ltd, Auckland.	0.5 mg/L	5
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-3, 5
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1-3
pH	pH meter. APHA 4500-H^+ B 23rd ed. 2017. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-3, 5
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	5
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 23rd ed. 2017.	0.1 mS/m	1-3, 5
Total Suspended Solids	Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. APHA 2540 D (modified) 23rd ed. 2017.	3 g/m^3	1-3
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B 23rd ed. 2017.	-	5
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.005 g/m^3	5
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.0053 g/m^3	1-3

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.02 g/m³	5
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m³	1-3
Dissolved Mercury	0.45µm filtration, bromine oxidation followed by atomic fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m³	5
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m³	1-3
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m³	1-3
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m³	1-3, 5
Total Ammoniacal-N	Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) 23rd ed. 2017.	0.010 g/m³	1-3, 5
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) 23rd ed. 2017.	0.002 g/m³	1-3, 5
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m³	1-3, 5
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) 23rd ed. 2017.	0.002 g/m³	1-3, 5
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m³	1-3, 5
Polycyclic Aromatic Hydrocarbons Trace in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.000005 g/m³	4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 20-Apr-2023 and 05-May-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Kim Harrison MSc
Client Services Manager - Environmental

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Certificate of Analysis
Laboratory Reference:230502-138

Attention:	Subcontracting .	*Final Report:*	**507967-0**
Client:	**R J HILLS**	*Report Issue Date:*	**04-May-2023**
Address:	**28 Duke Street, Frankton, Hamilton, 3204**	*Received Date:*	**02-May-2023**
		Sampled By:	**Hills**
Client Reference:	**EnvSubWC 314**	*Laboratory Activity Dates:*	**04-May-2023 - 04-May-2023**
Purchase Order:	**159466**	*Quote Reference :*	**15559**

All samples received outside of holding time (DOC - 48 hrs, TOC - 5 days) for analysis. Results may not accurately reflect composition of sample at the time of sampling.

Sample Details	WATERS
Lab Sample ID:	**230502-138-1**
Client Sample ID:	3247082.5
Sample Date/Time	17/04/2023 12:30
Description:	Ground Water

Organics

Total Organic Carbon by Non-dispersive infrared detection

Total Organic Carbon	mg/L	4.3

*Results marked with * are not accredited to International Accreditation New Zealand. A dash indicates no test performed.*

Where samples have been supplied by the client, they are tested as received.
The results of analysis contained in this report relate only to the sample(s) tested. Where sample collection was performed by the laboratory, the results of analysis contained in this report relate only to the sample(s) collected.

Reference Methods
The sample(s) referred to in this report were analysed by the following method(s)

Analyte	Method Reference	MDL	Samples	Location
Organics				
Total Organic Carbon by Non-dispersive infrared detection				
Total Organic Carbon	APHA (online edition) 5310 B	0.1 mg/L	All	Auckland

The method detection limit (MDL) listed is the limit attainable in a relatively clean matrix. If dilutions are required for analysis the detection limit may be higher. For more information please contact the Compliance and Projects Manager.

Samples, with suitable preservation and stability of analytes, will be held by the laboratory for a period of two weeks after results have been reported, unless otherwise advised by the submitter.

Watercare Laboratory Services is a division of Watercare Services Limited .

Peter Boniface

KTP Signatory

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